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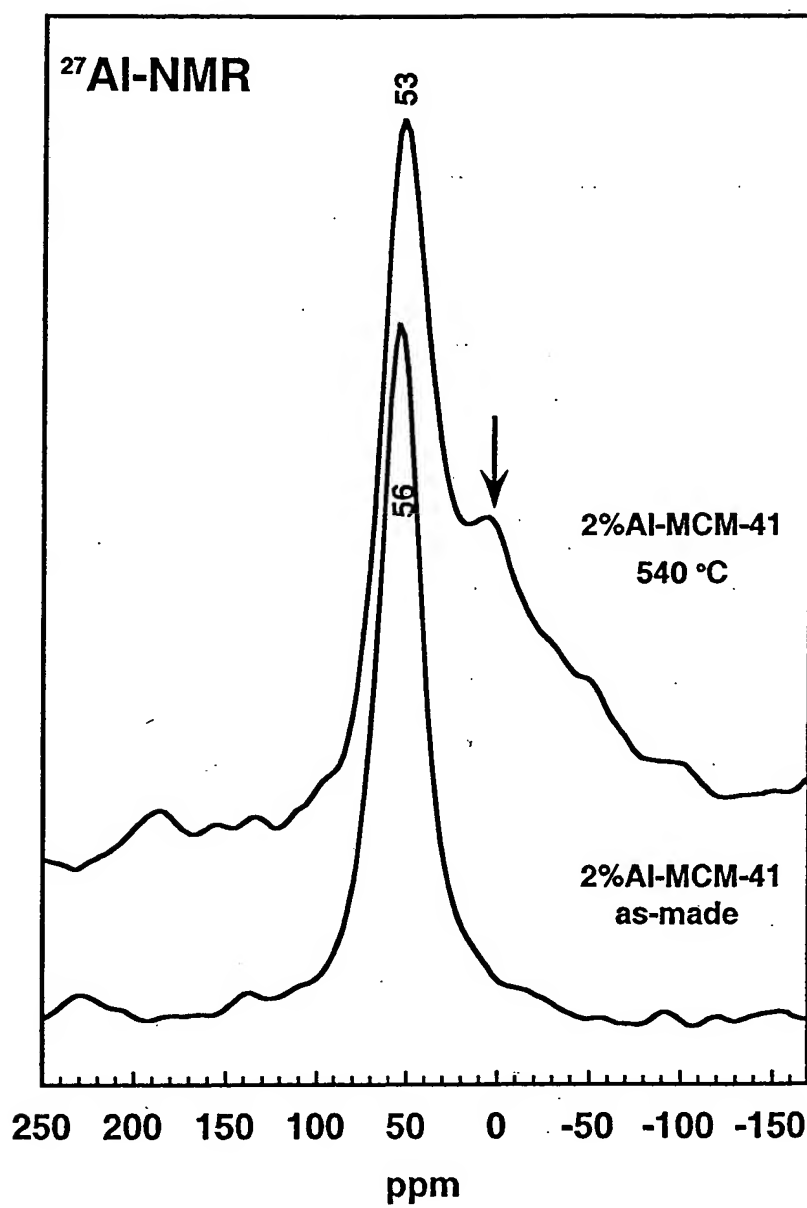


Figure 1

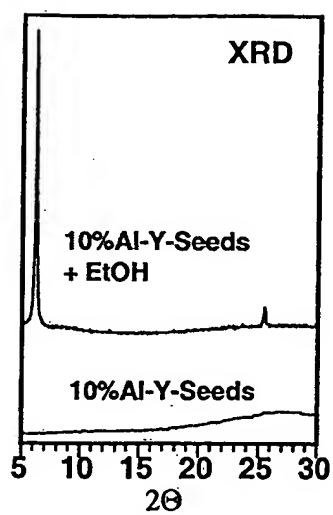


Figure 2A

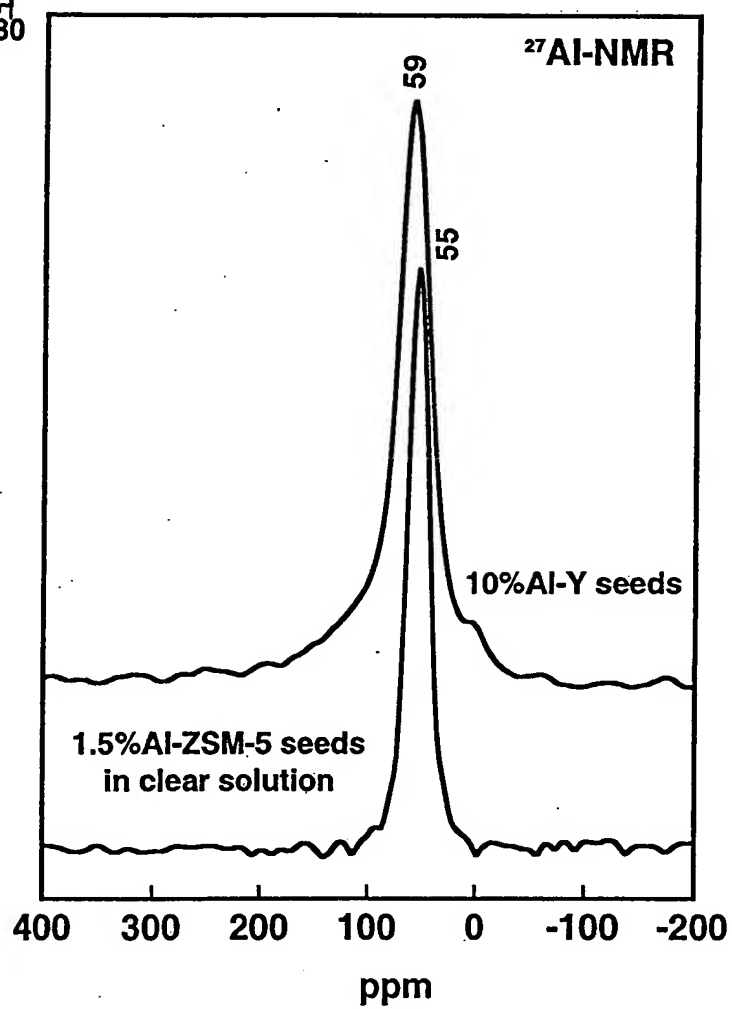


Figure 2

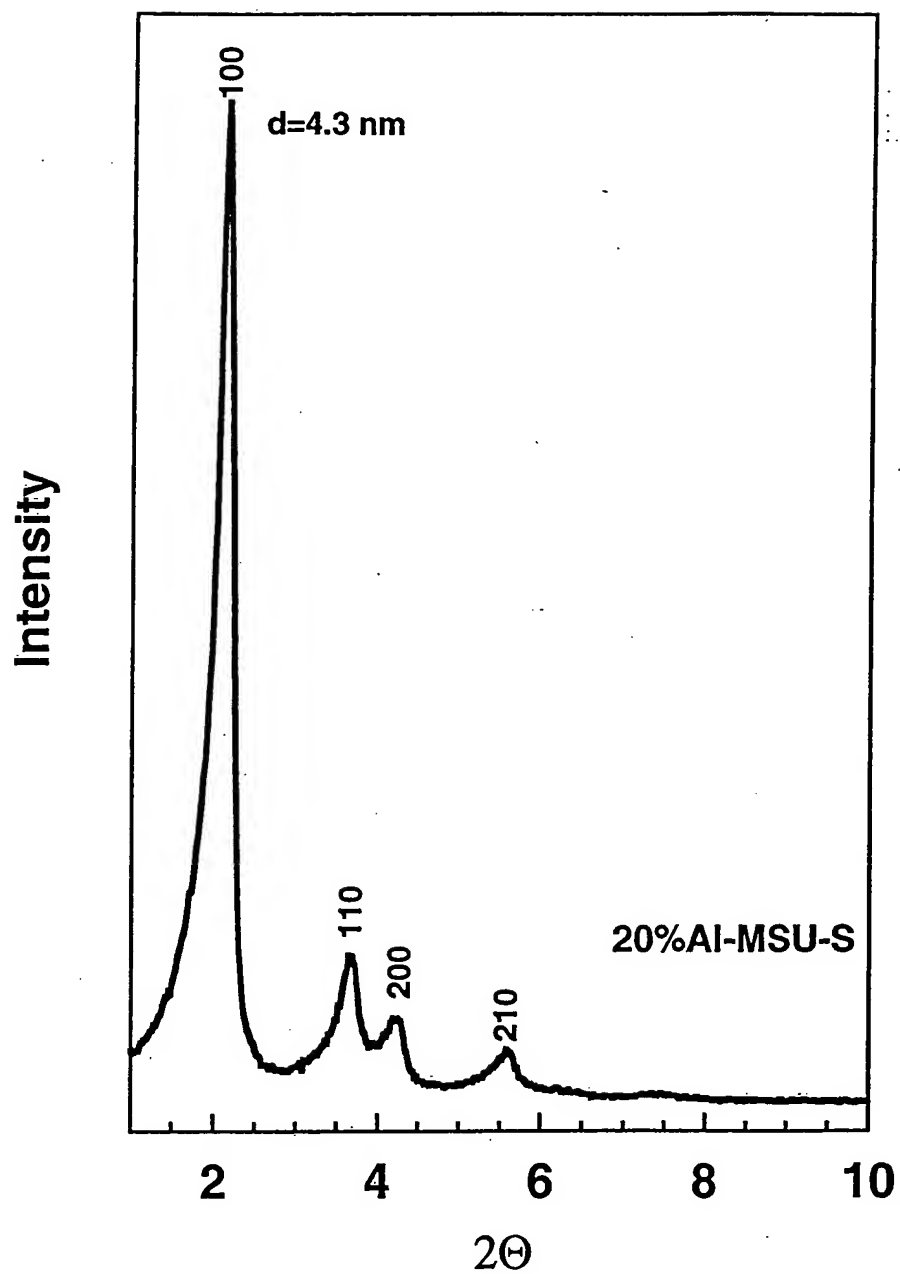


Figure 3

**$^{27}\text{Al}$ -NMR**

62

HY

10%Al-MSU-S

20%Al-MSU-S

2%Al-MSU-S

250 200 150 100 50 0 -50 -100 -150

ppm

### Figure 4

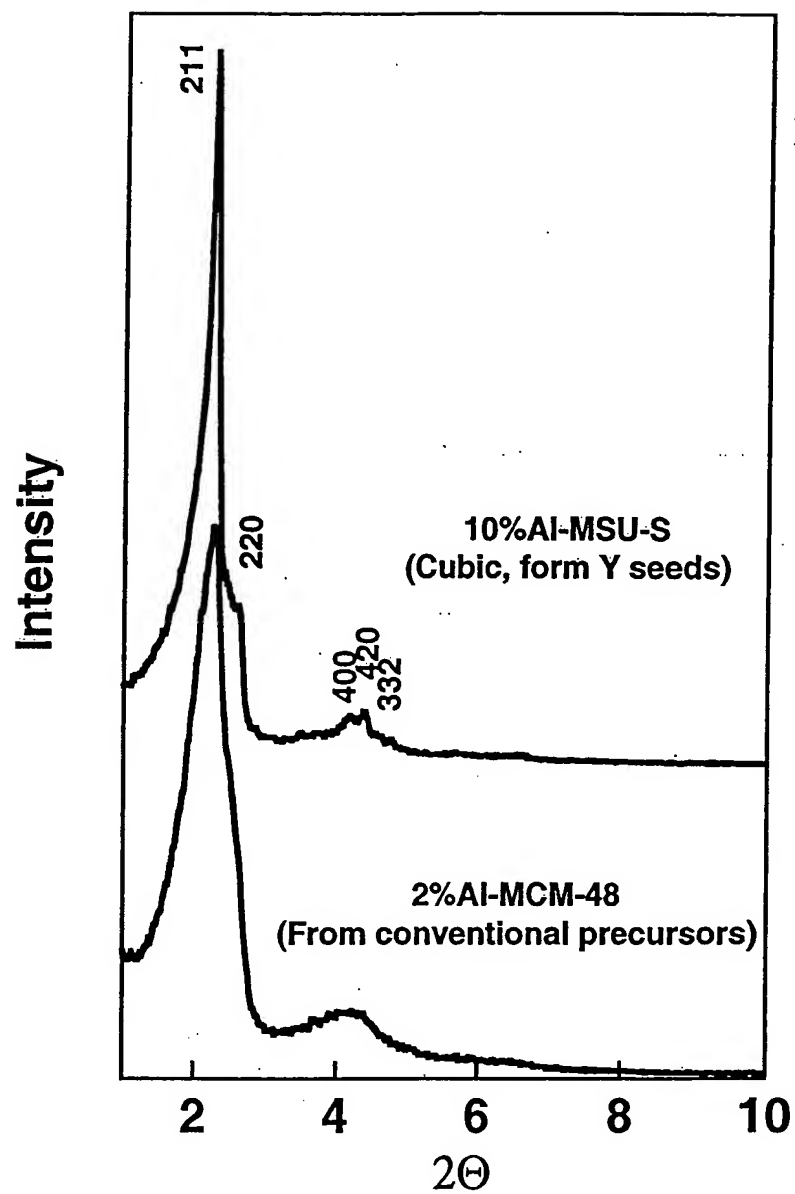


Figure 5



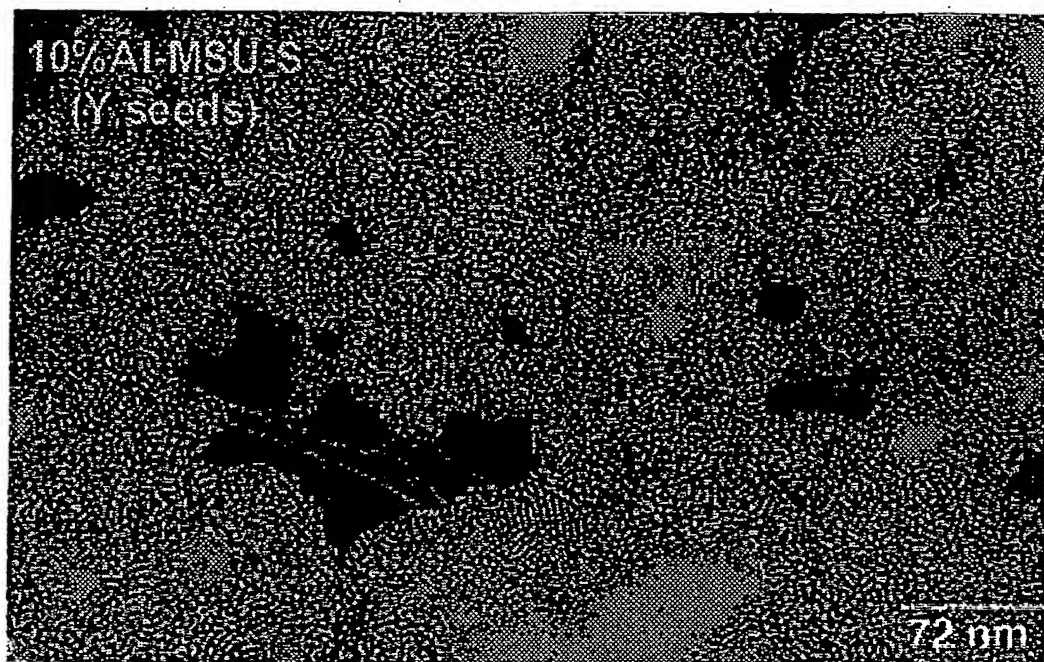


Figure 7



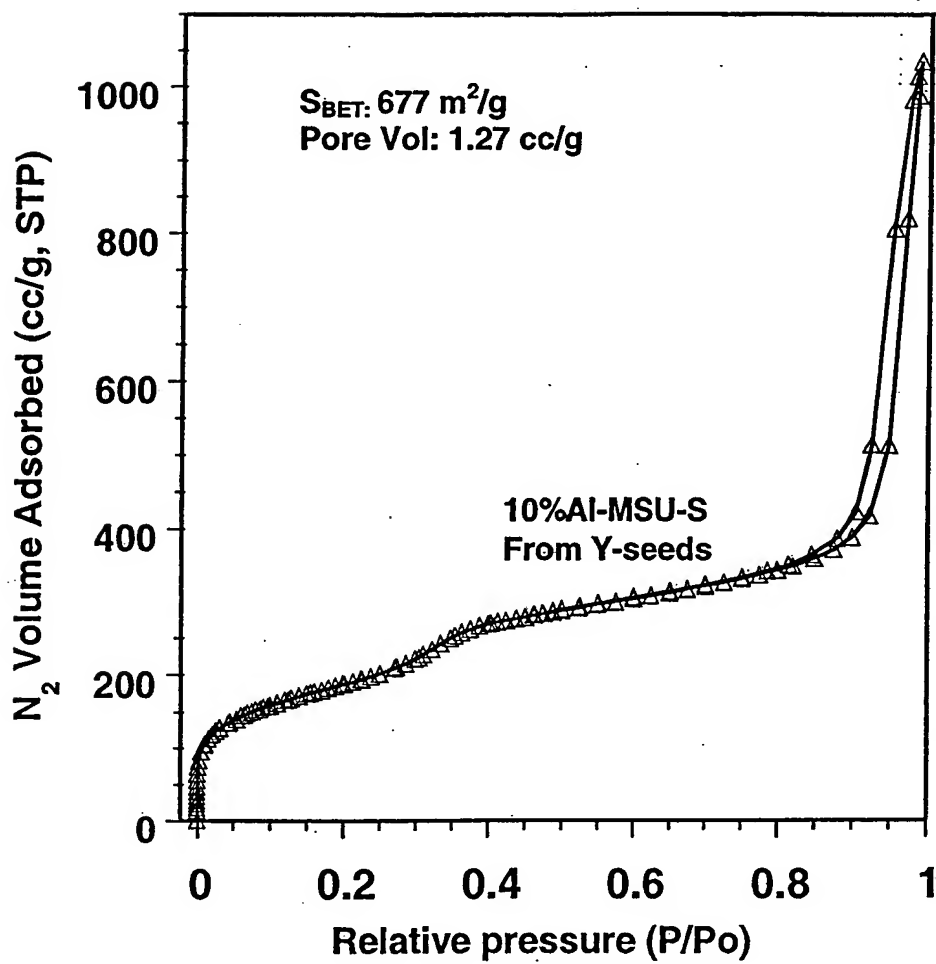


Figure 8

1005647 1213004

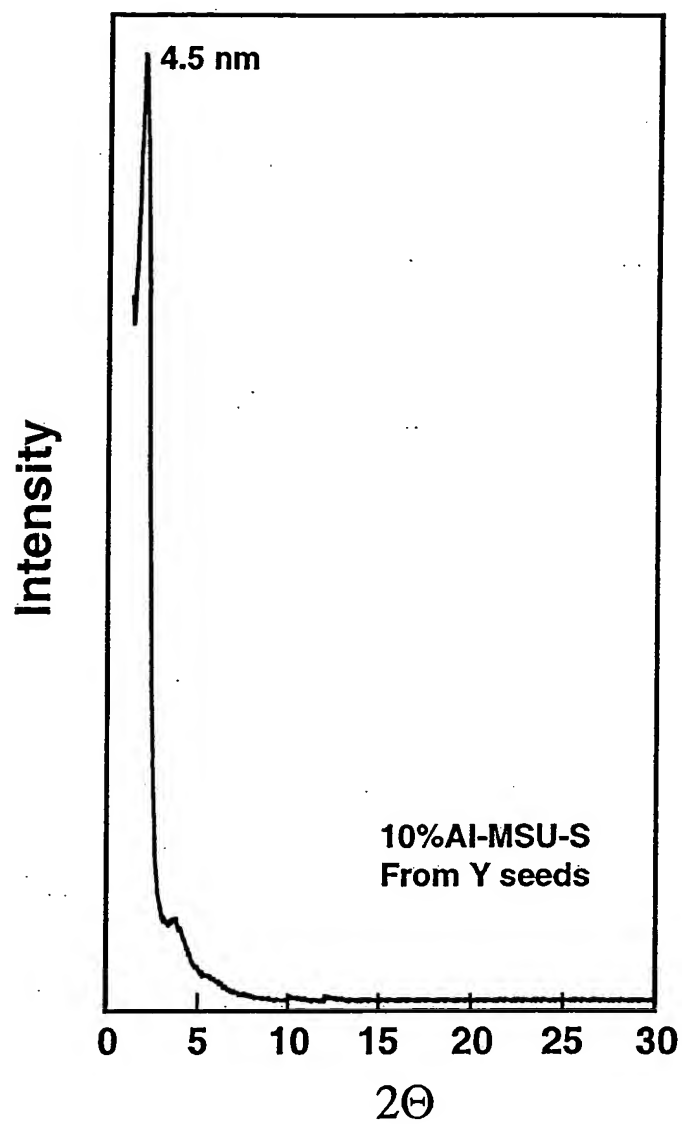


Figure 9

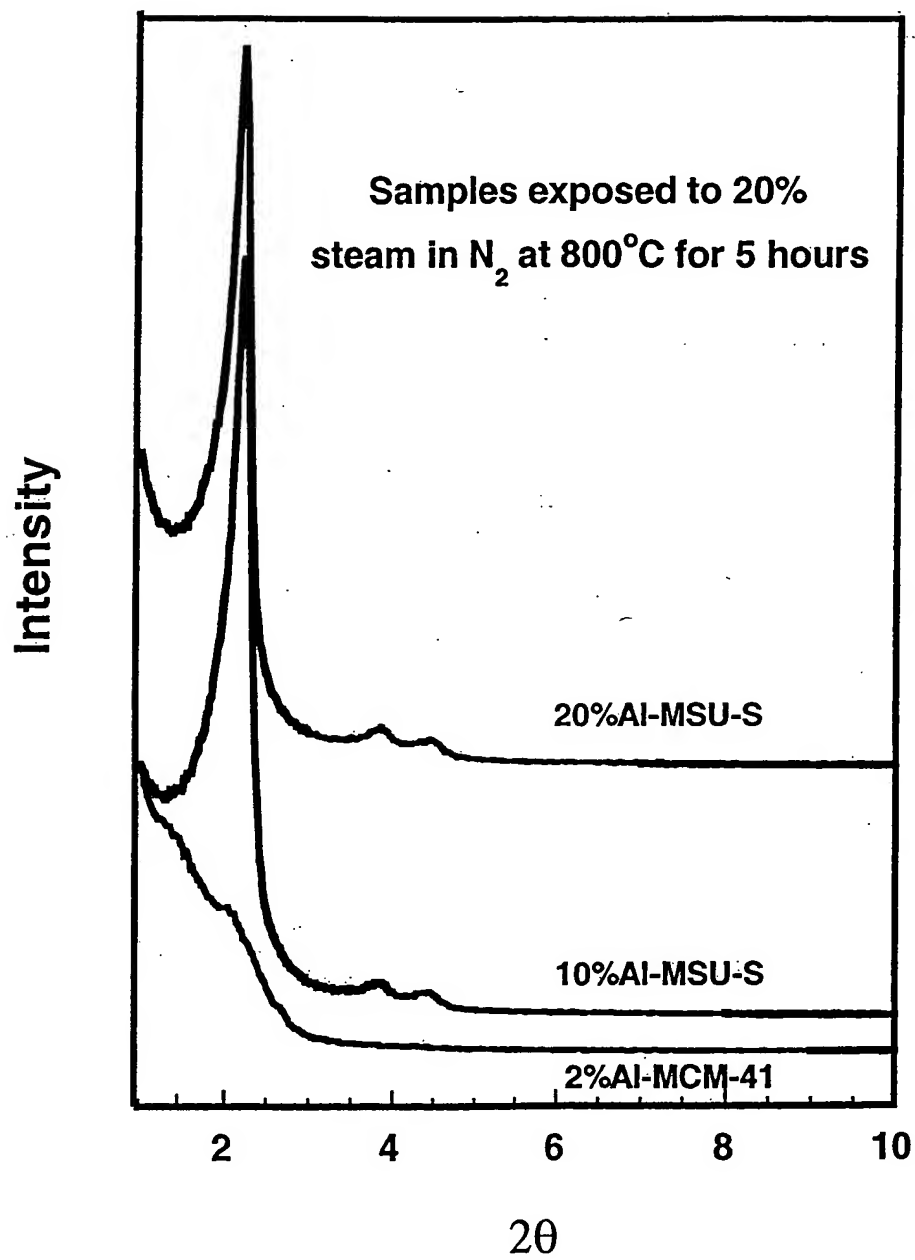


Figure 10

# Testing of Mokaya's Al-MCM-41(Si/Al=6.1)

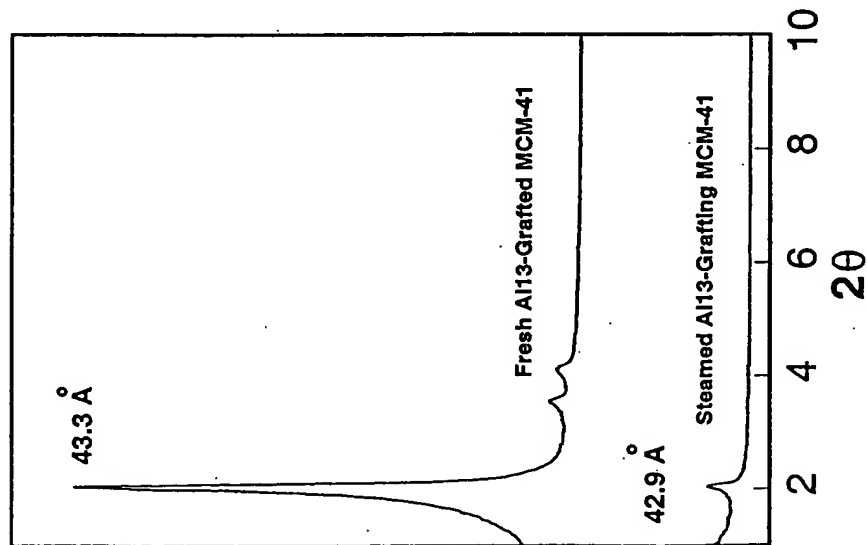


Figure 11A

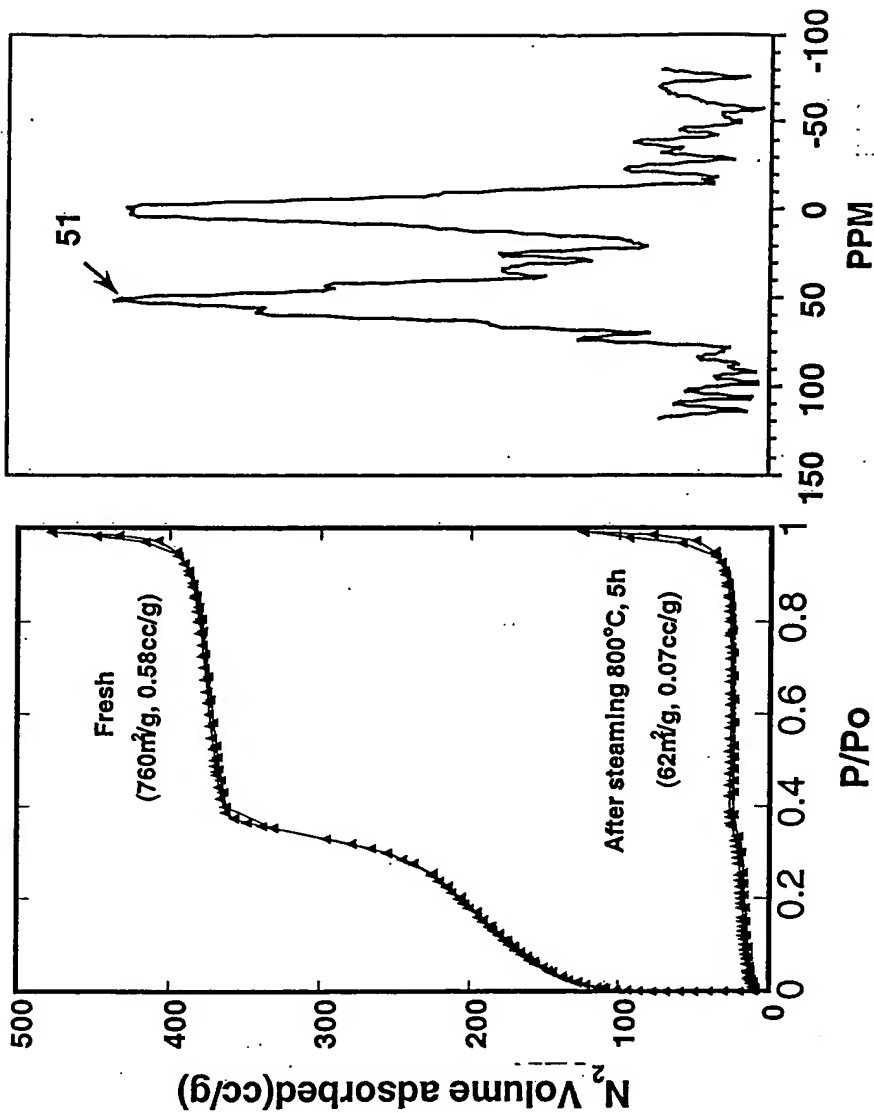
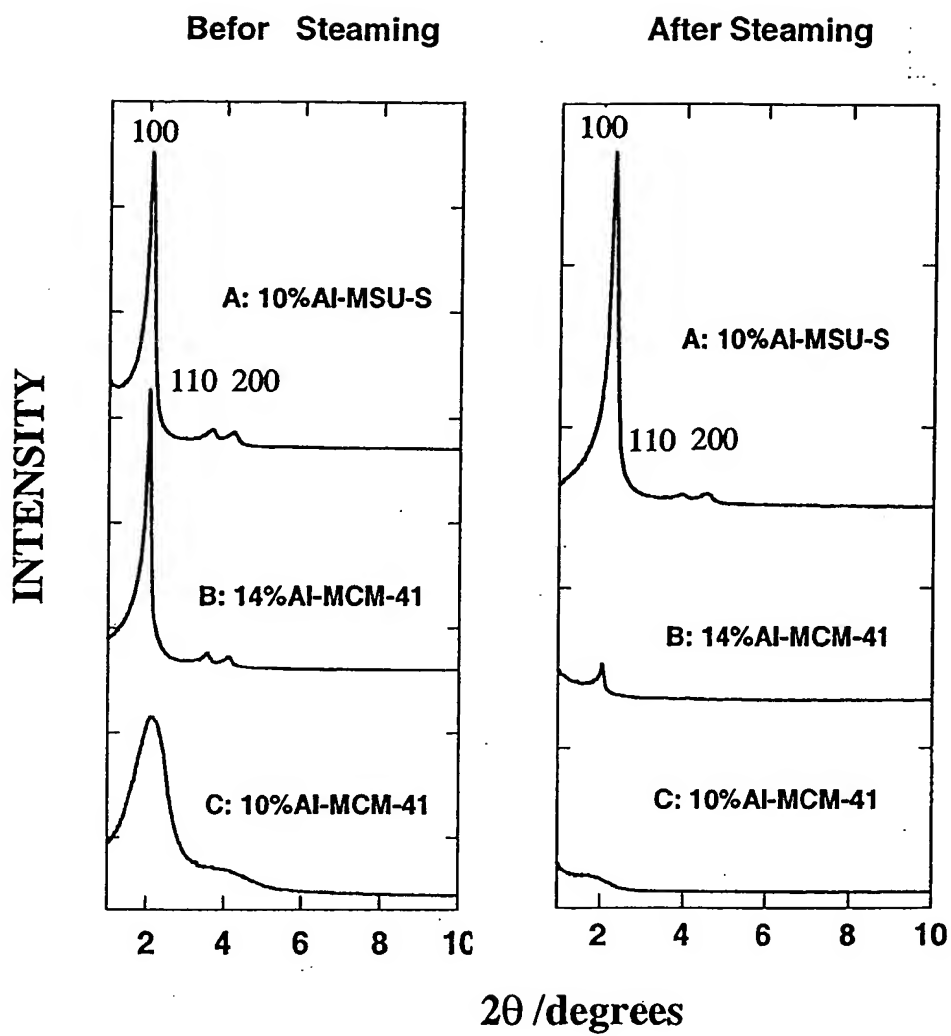


Figure 11B

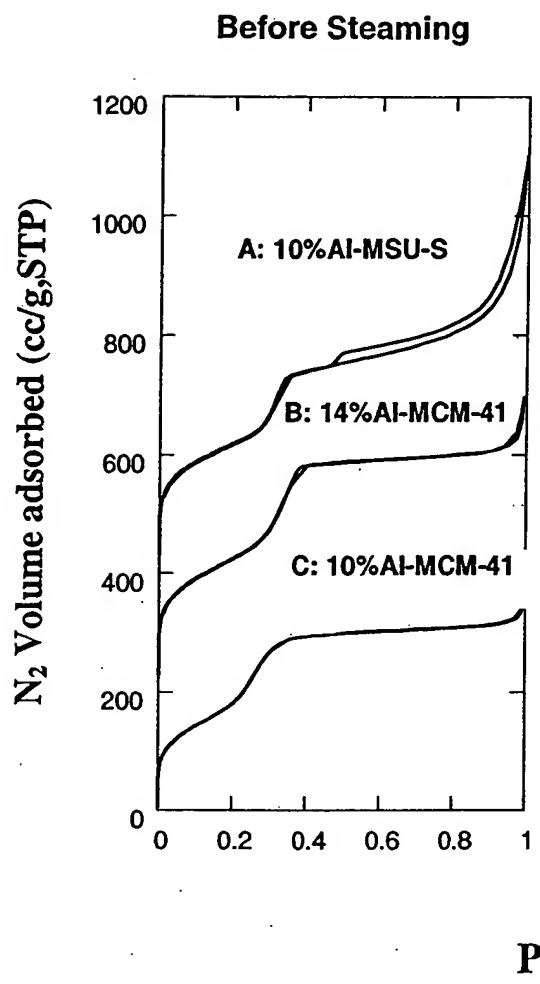
Figure 11C



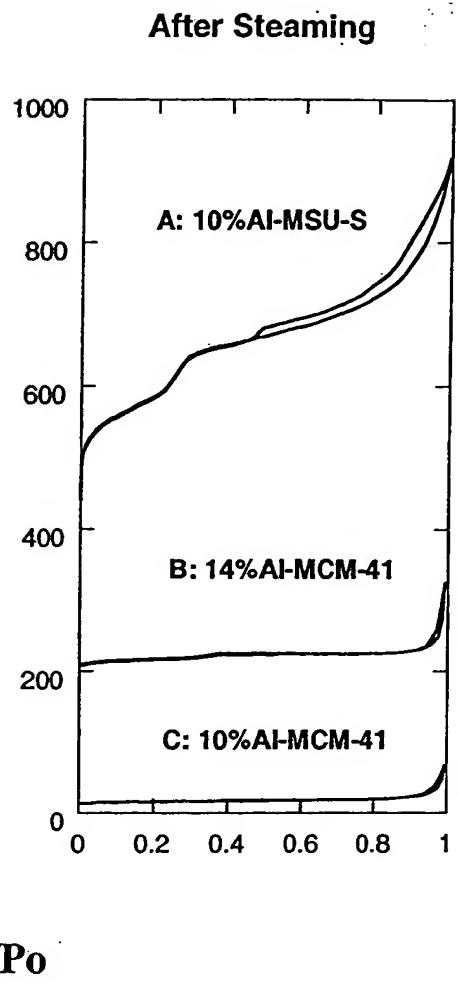
**Figure 12A**

**Figure 12B**

1005647 4992001



**Figure 13A**



**Figure 13B**

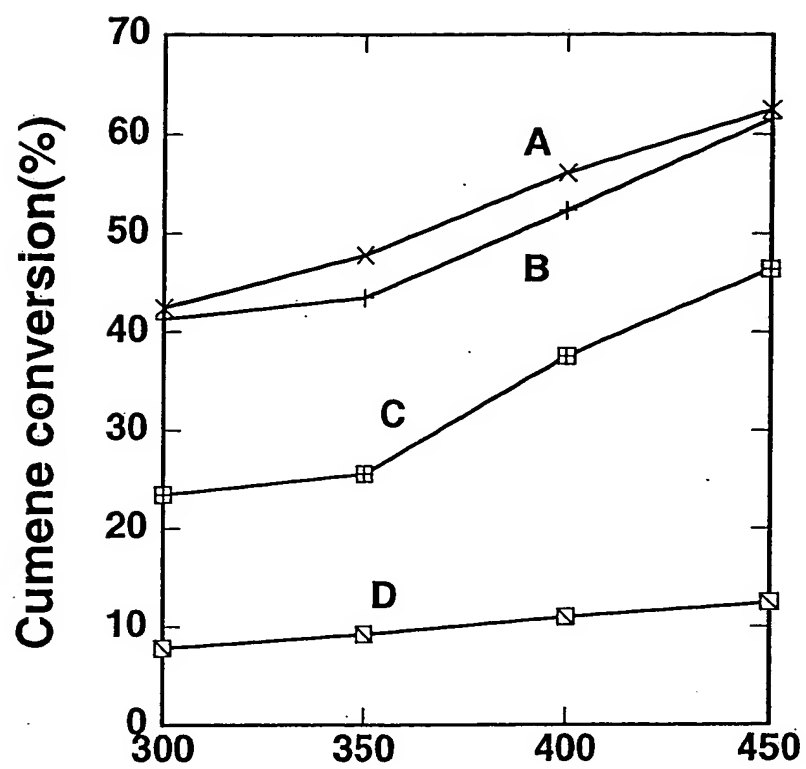


Figure 14

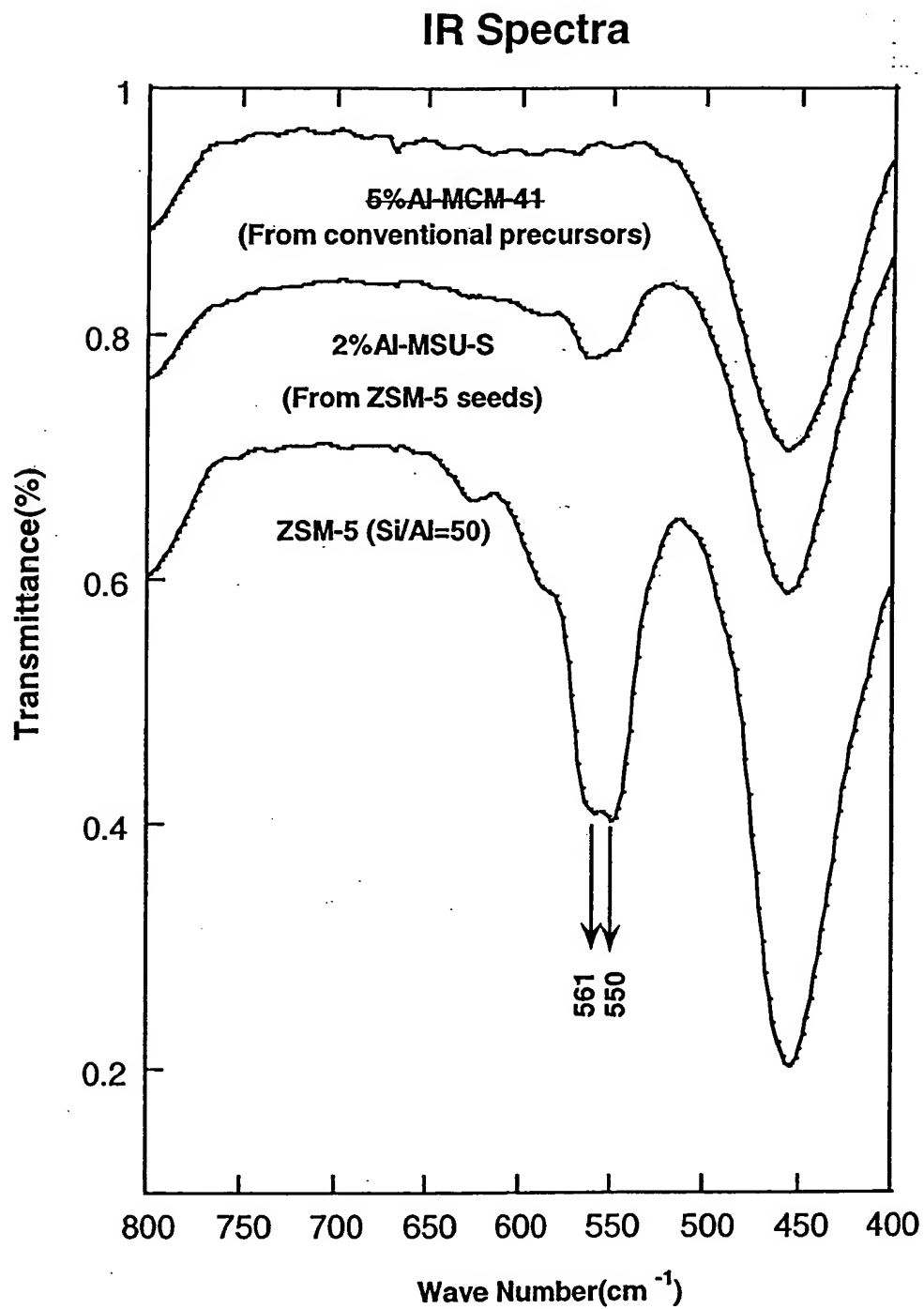


Figure 15



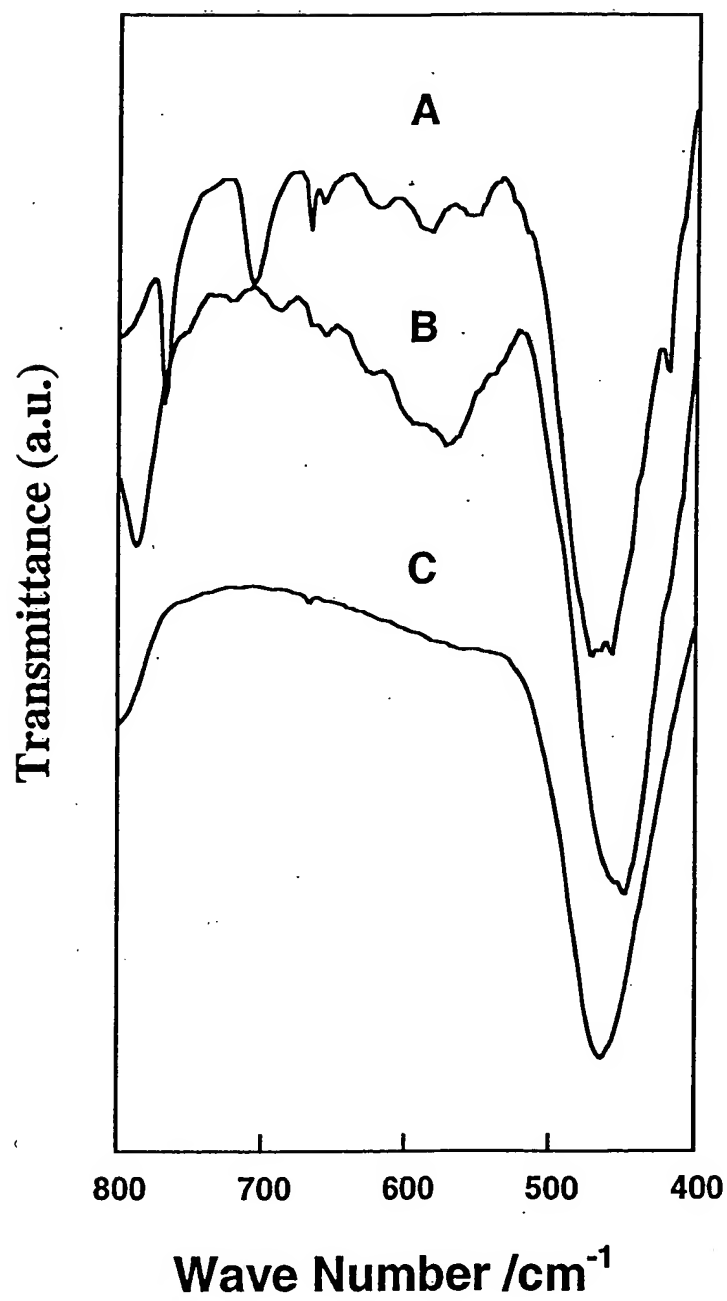


Figure 16

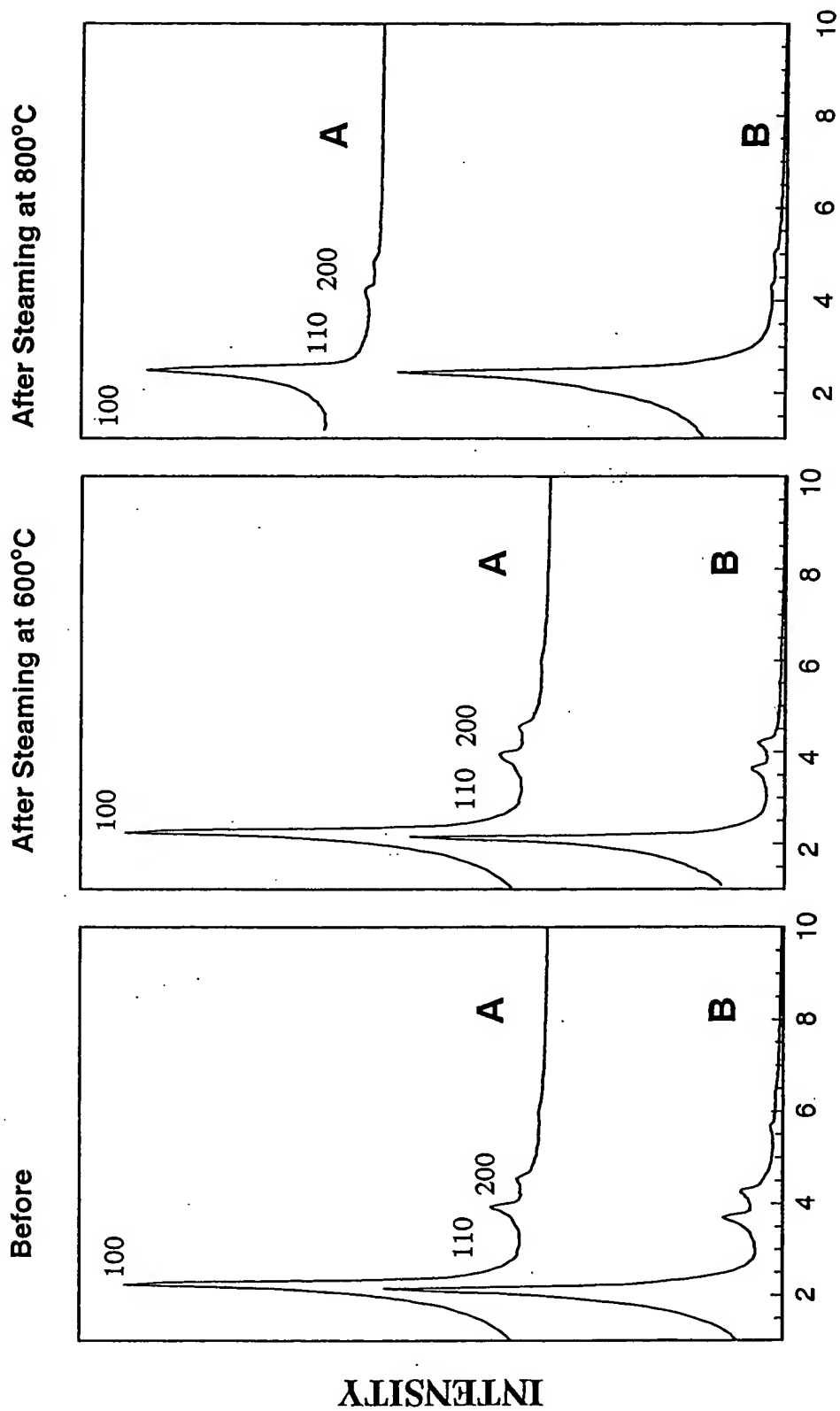


Figure 17A

Figure 17B

Figure 17C

100727-6495004

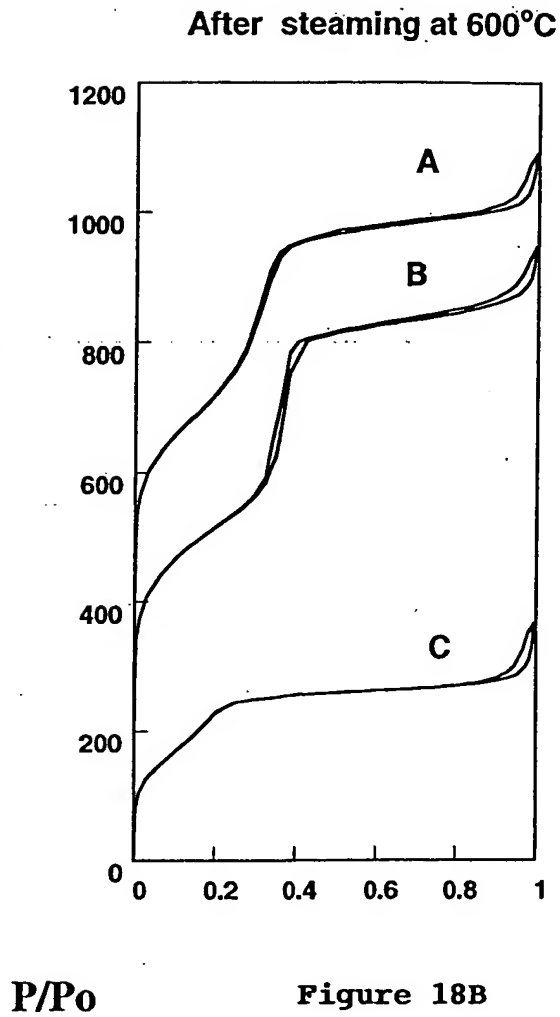
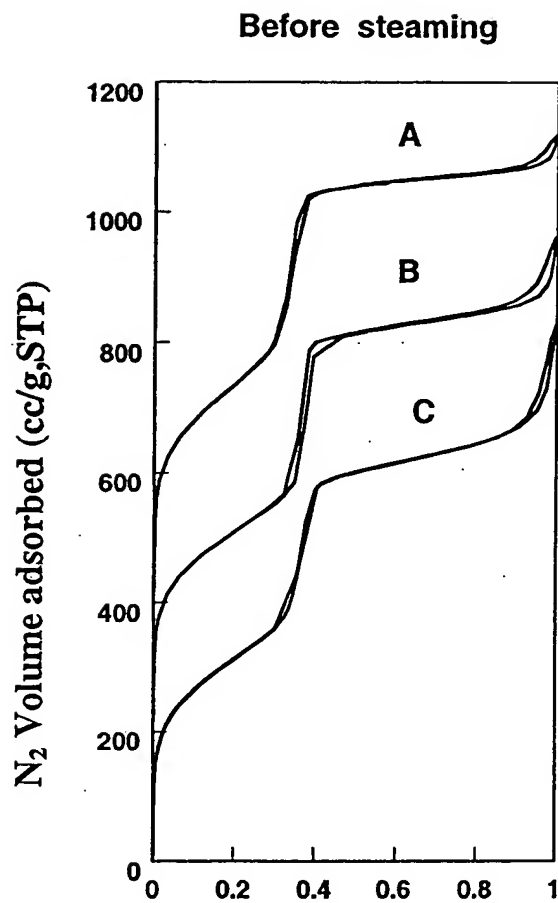


TABLE 4-1005

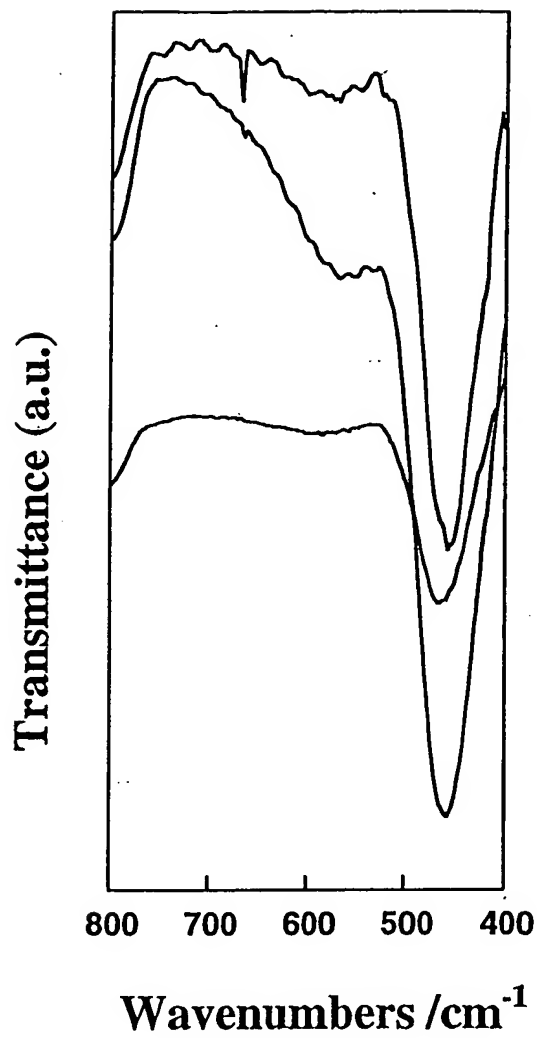


Figure 19

The figure displays two X-ray diffraction patterns, labeled A and B, plotted against the diffraction angle  $2\theta$  in degrees. The x-axis ranges from 0 to 6 degrees with major tick marks every 1 degree. Pattern A, representing the sample after 10 days in benzene, shows a sharp, intense peak at approximately 0.8 degrees, labeled '100'. A smaller peak is visible at approximately 1.1 degrees, labeled '110'. The intensity of the peaks decreases as the angle increases, with a small shoulder labeled '200' around 1.5 degrees. Pattern B, representing the sample after 10 days in water, shows a much broader and less intense peak centered around 1.5 degrees. The overall intensity of pattern B is significantly lower than that of pattern A, indicating a loss of crystalline order.

**Figure 20**

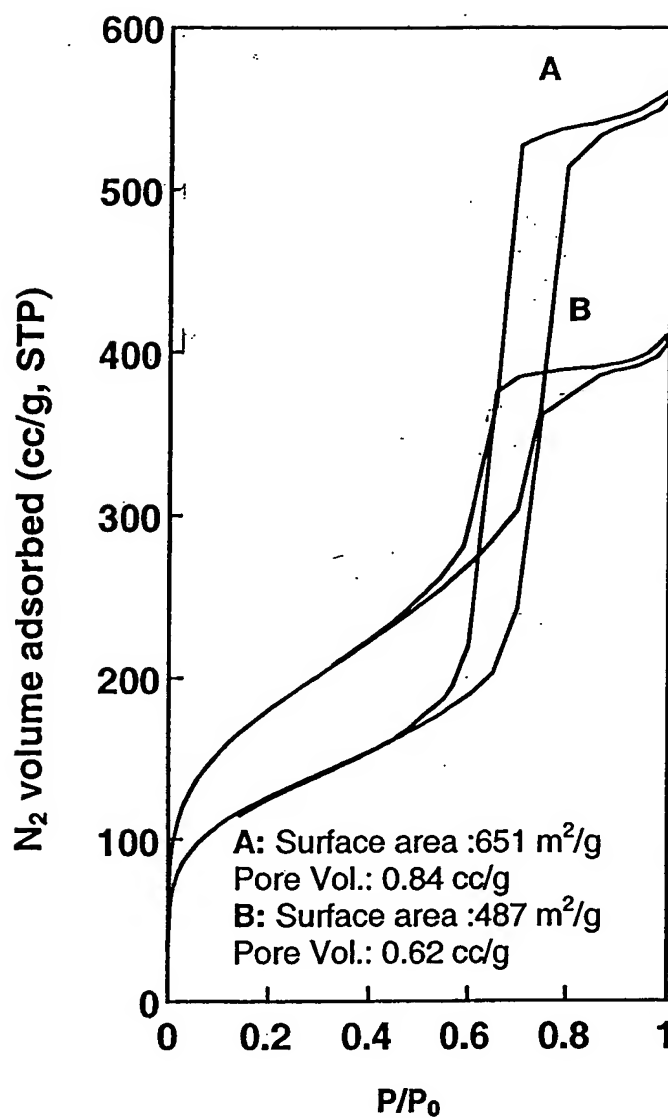


Figure 21

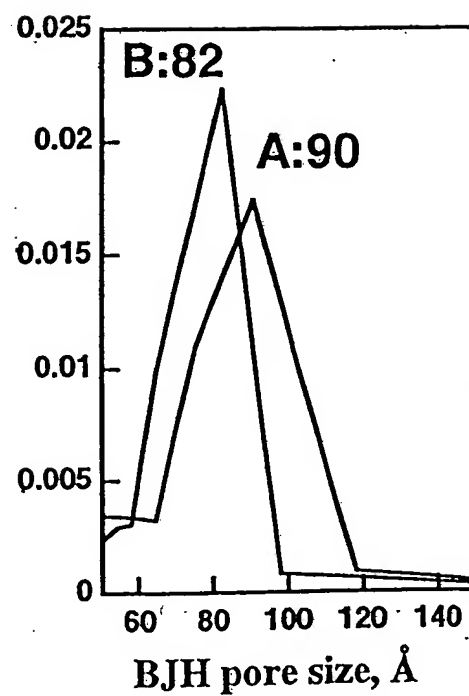


Figure 21A

100507 240000

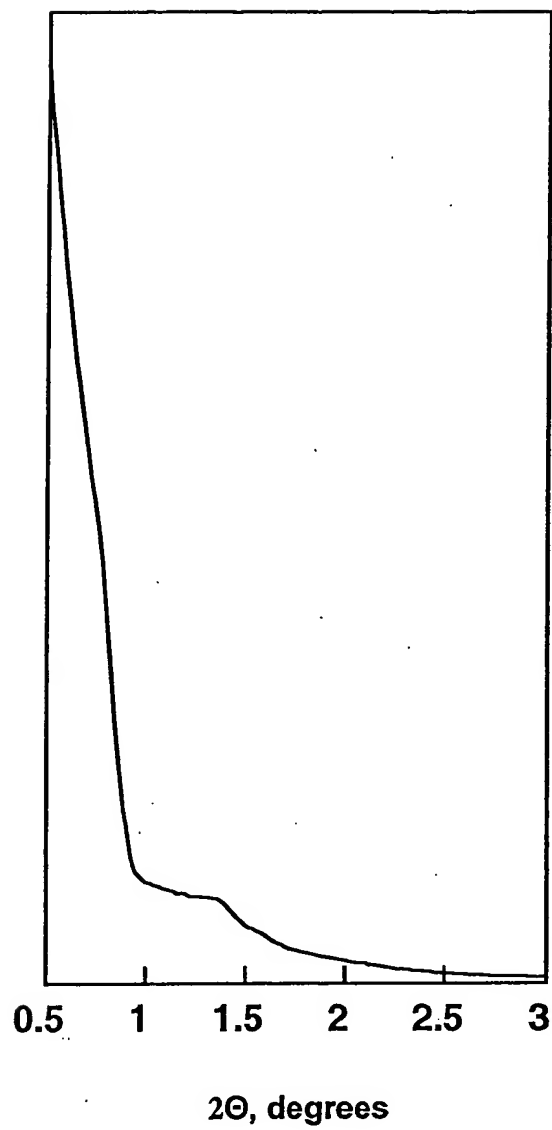


Figure 22

105121 2435004

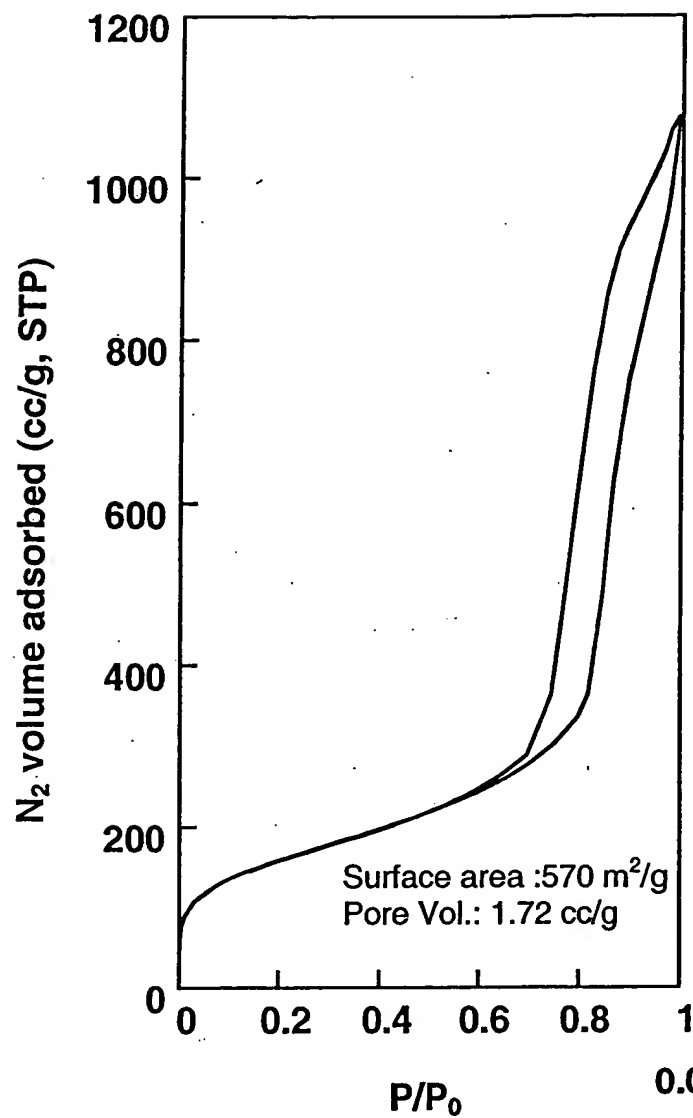


Figure 23

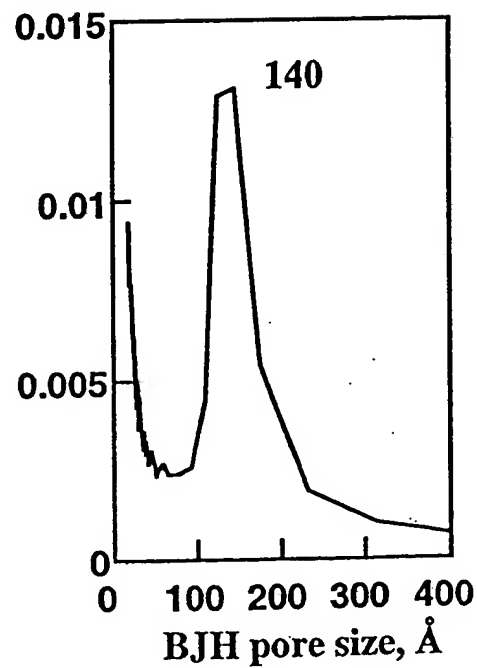


Figure 23A



105121-433200

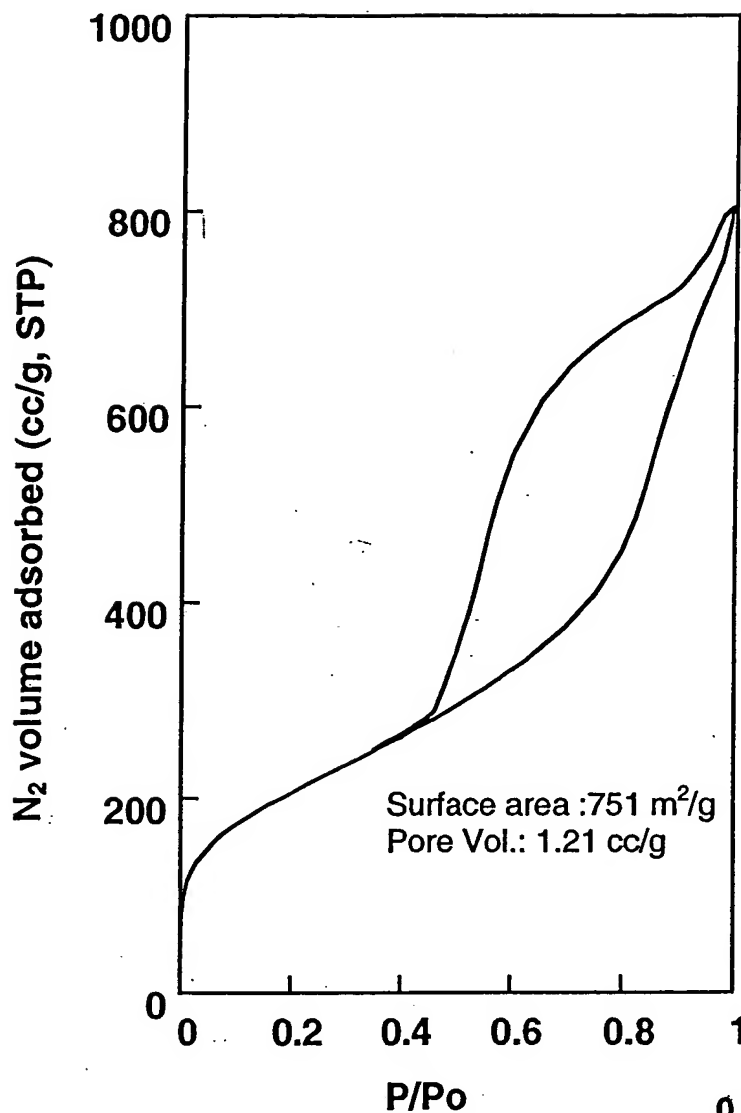


Figure 24

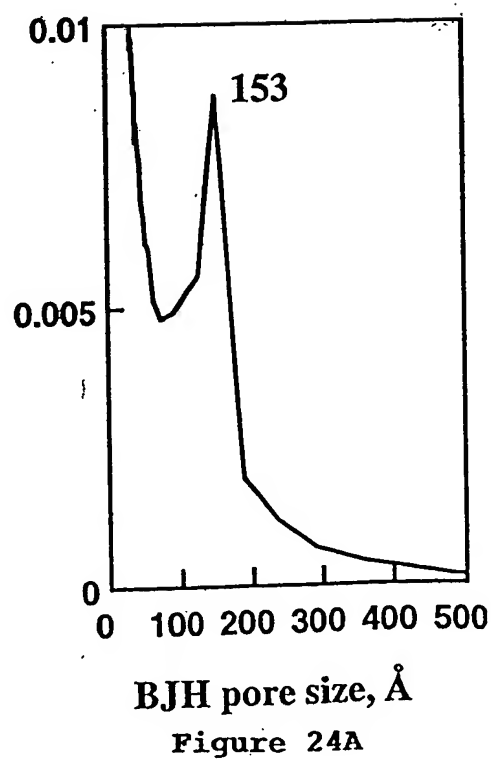


Figure 24A

103121 2495004

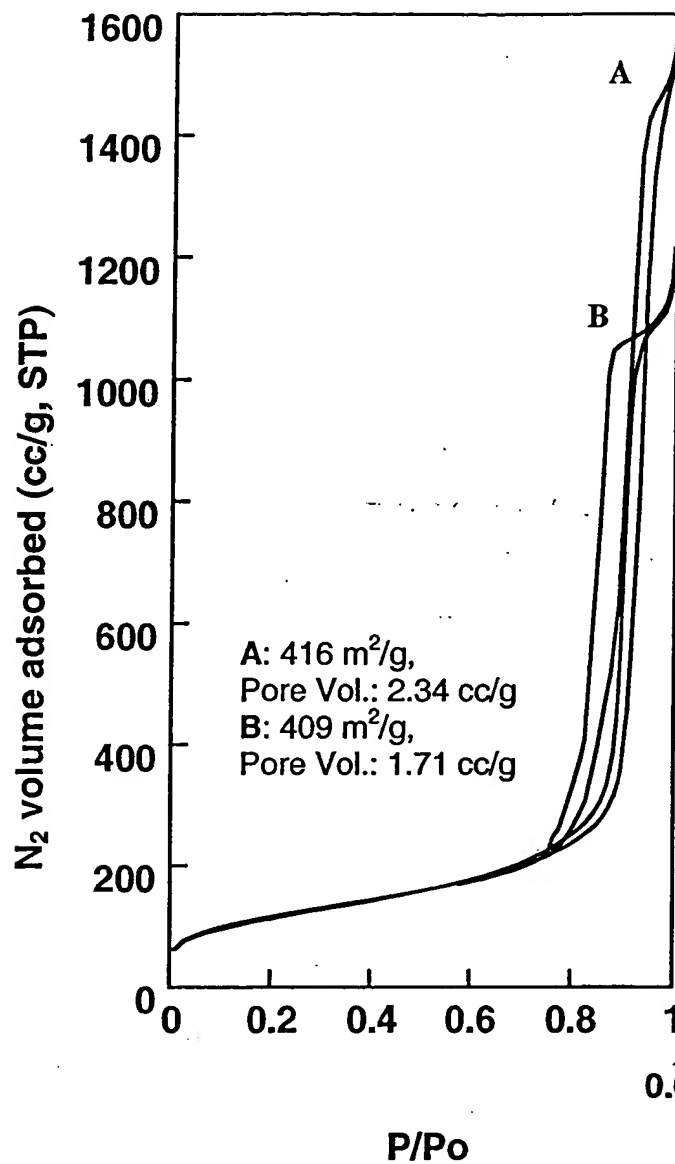


Figure 25

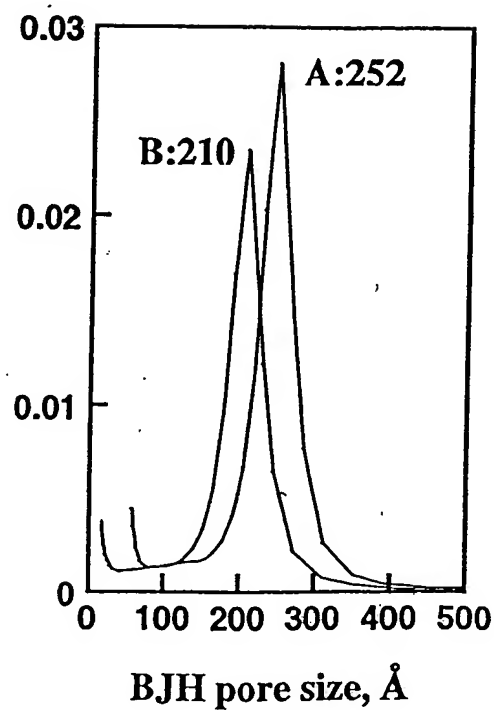


Figure 25A

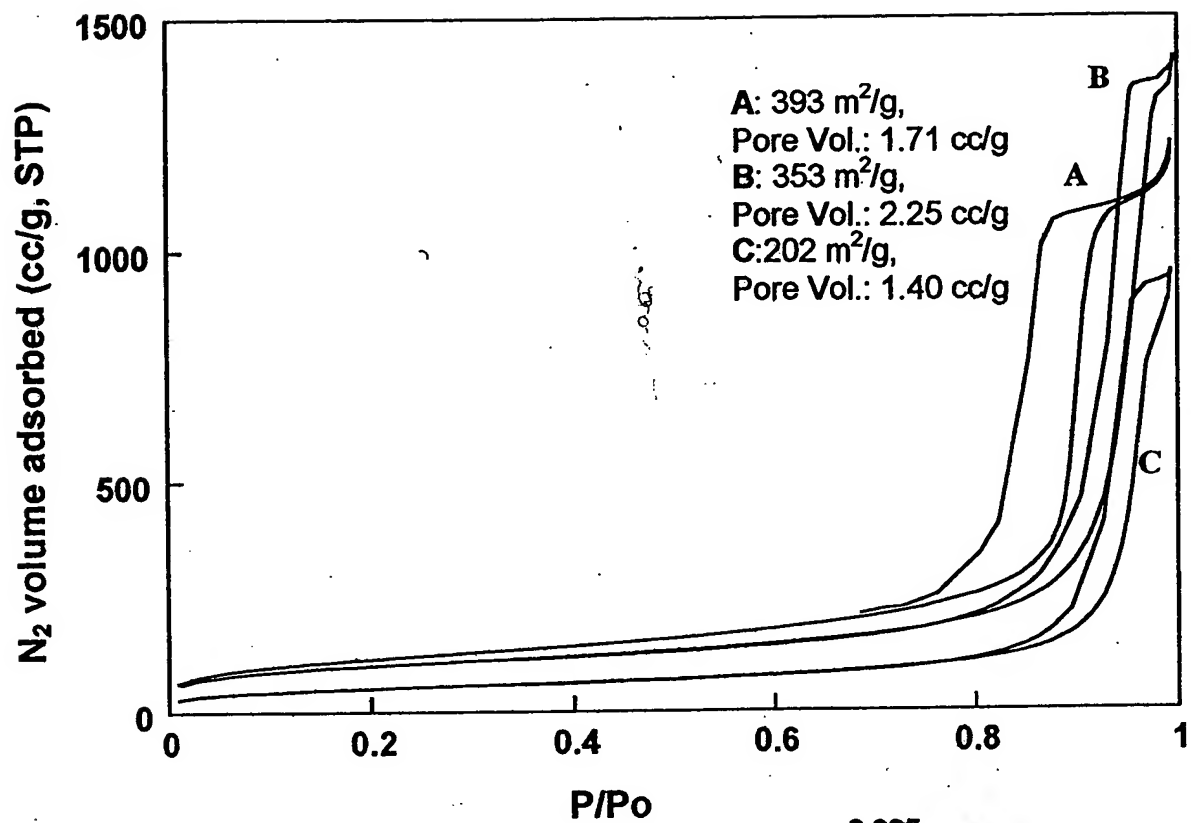


Figure 26

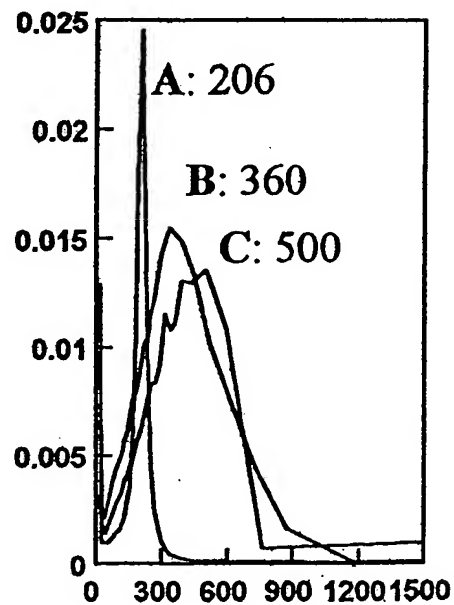


Figure 26A

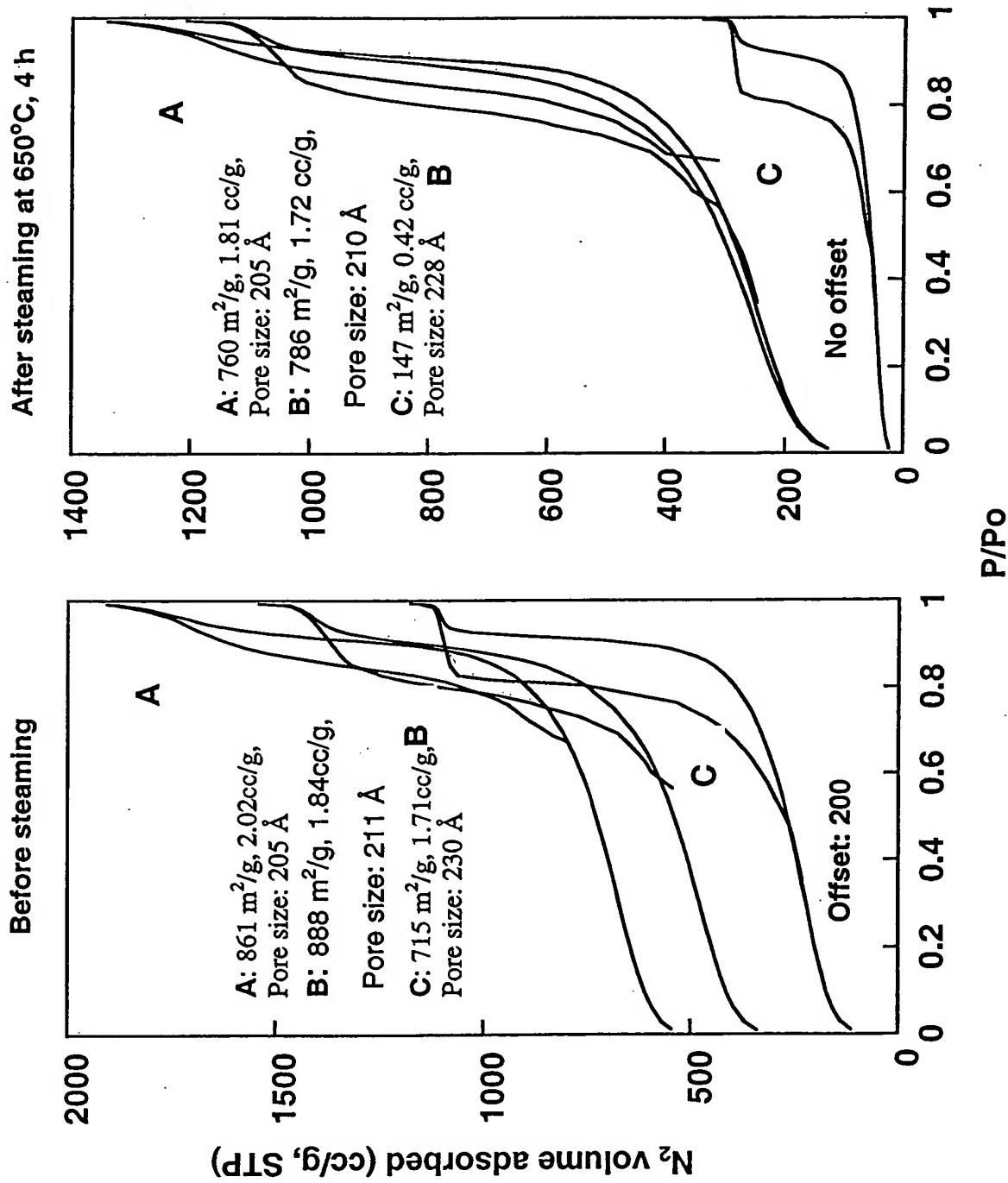


Figure 27A

Figure 27B

100707 2495001

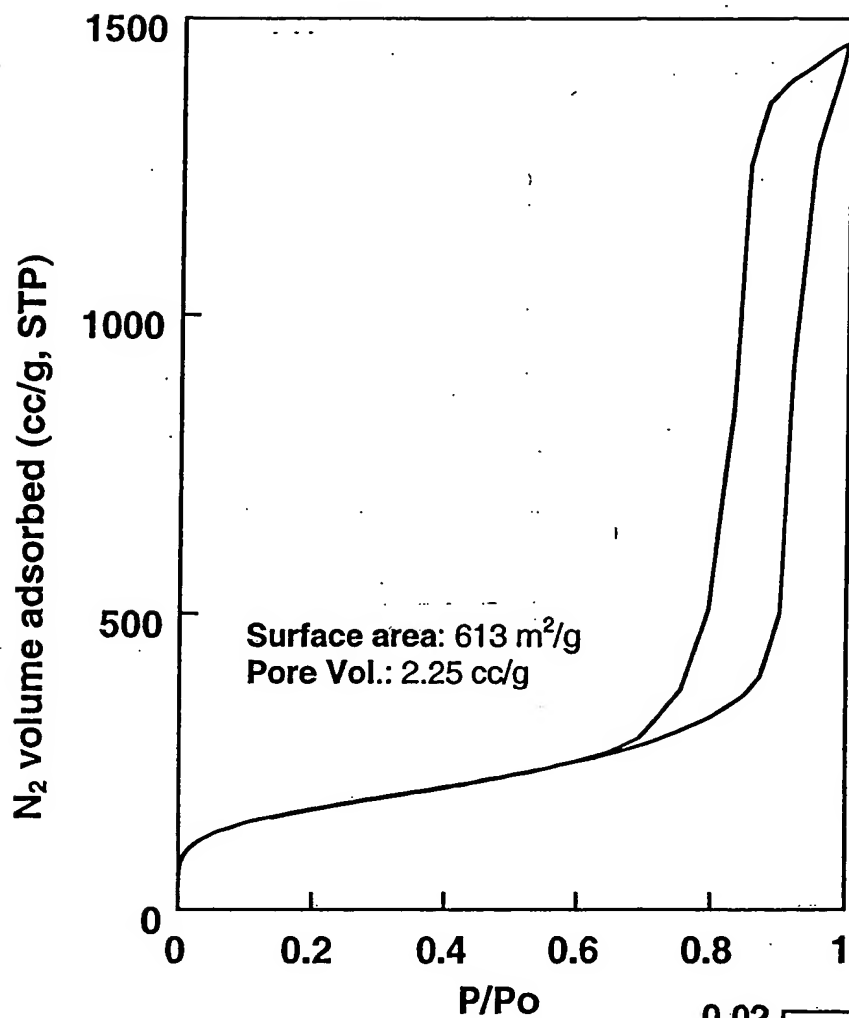


Figure 28

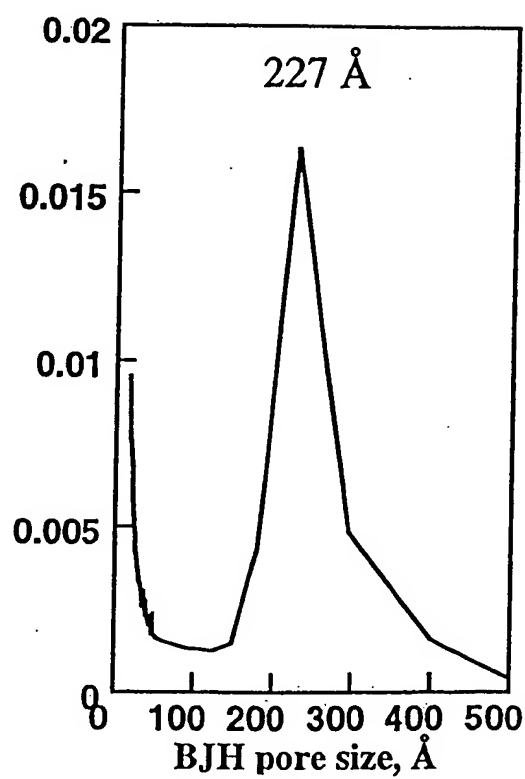


Figure 28A

The figure displays two X-ray diffraction patterns, labeled A and B, plotted against the diffraction angle  $2\theta$  in degrees. The x-axis ranges from 0 to 12 degrees with major tick marks every 2 units. Pattern A, representing poly(2-vinylpyridine), shows a sharp, intense peak at  $2\theta \approx 3.5^\circ$ , which is labeled '3.5 nm'. Pattern B, representing poly(2-vinylpyridine-co-vinylcarbazole), shows a sharp peak at  $2\theta \approx 3.3^\circ$ , labeled '3.3 nm', followed by a broad, low-intensity shoulder extending to higher angles, indicating a semi-crystalline structure with some amorphous character.

### Figure 29

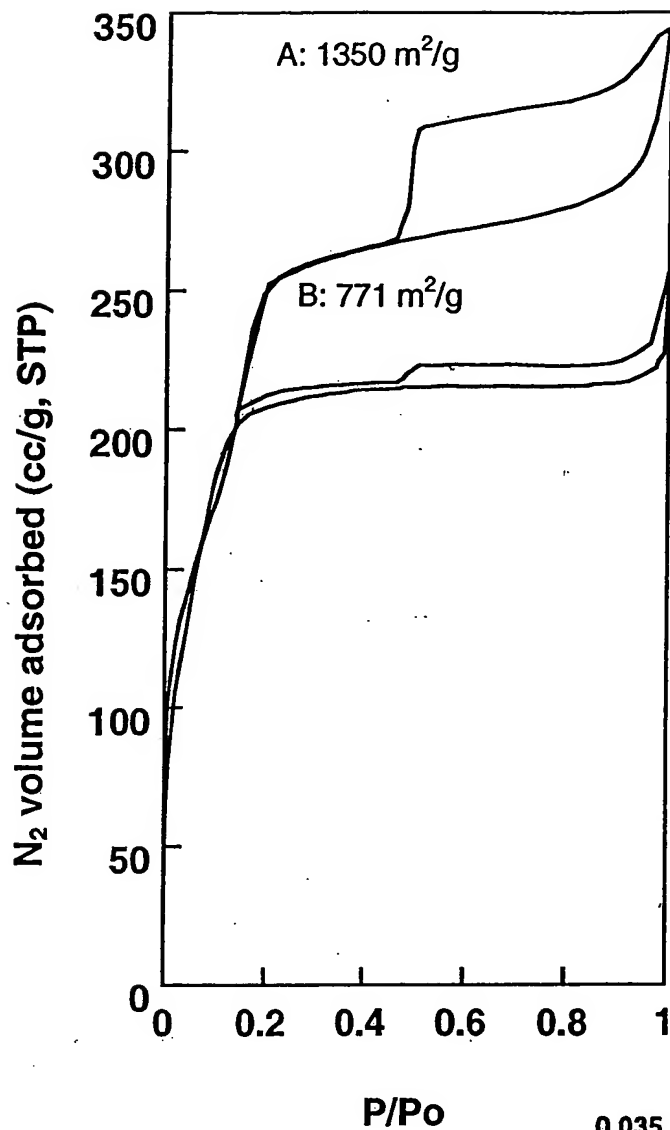


Figure 30

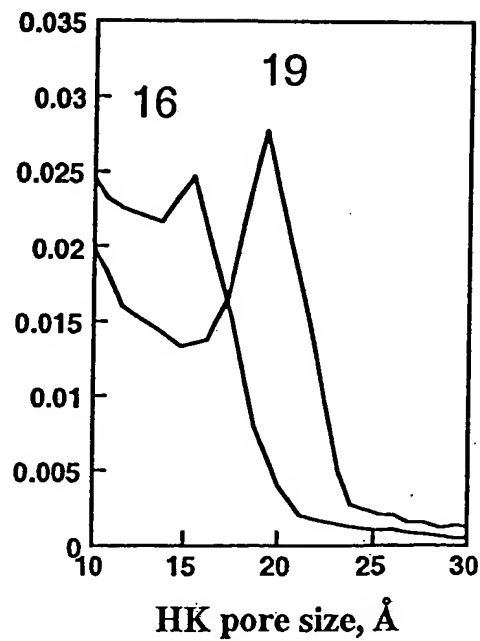


Figure 30A

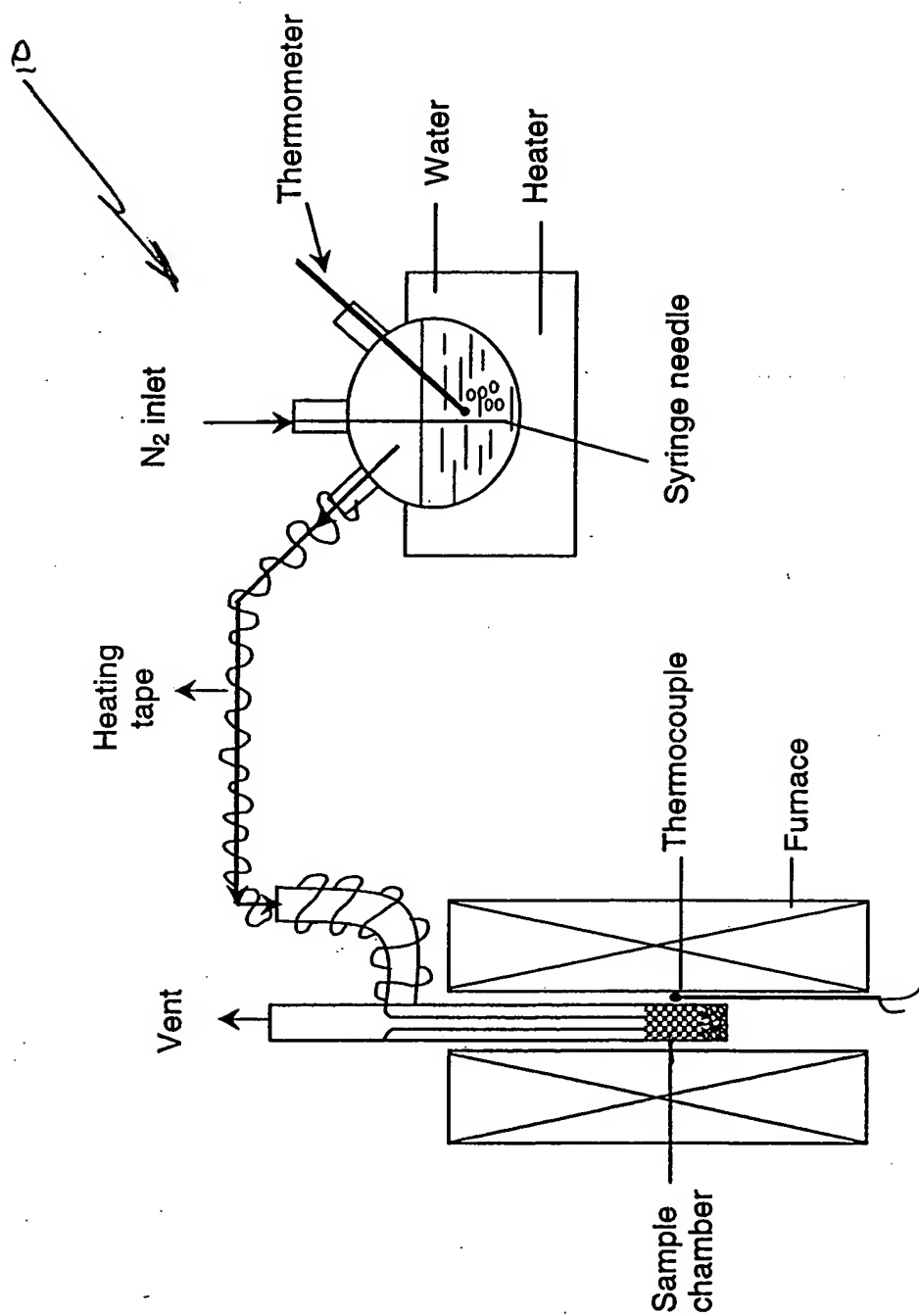


Figure 31



10025547 121301

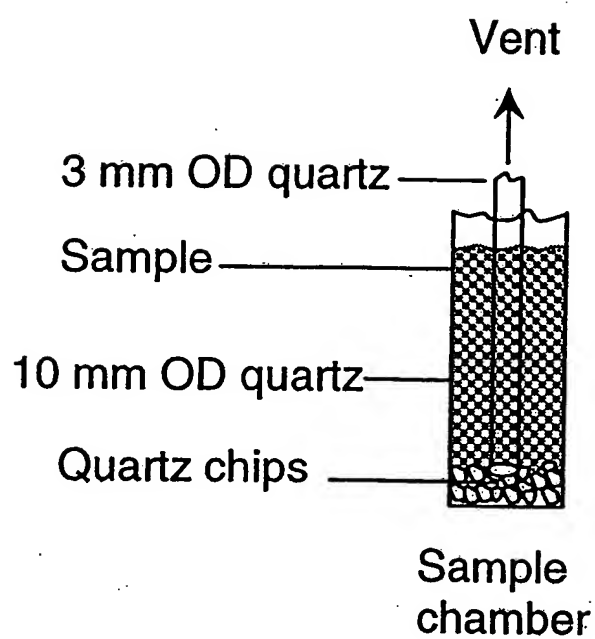


Figure 31A

FIGURE 32 (Example 31)

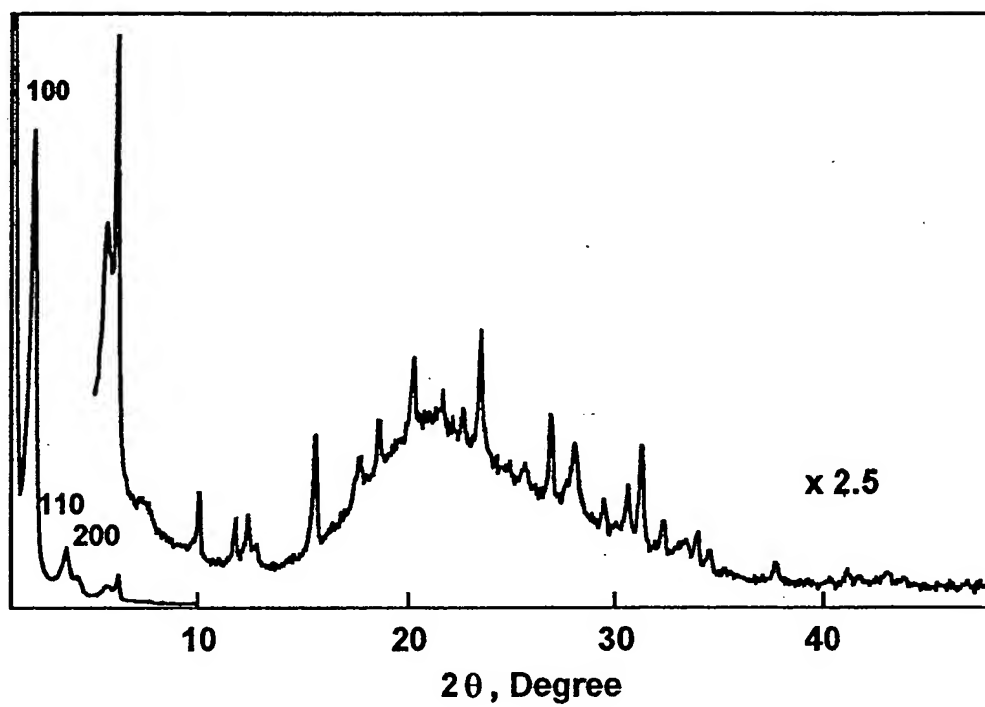


FIGURE 33 (Sample 31)

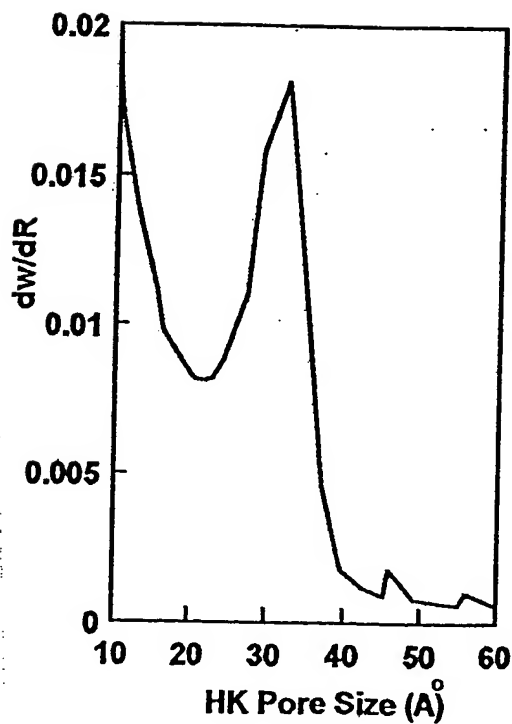
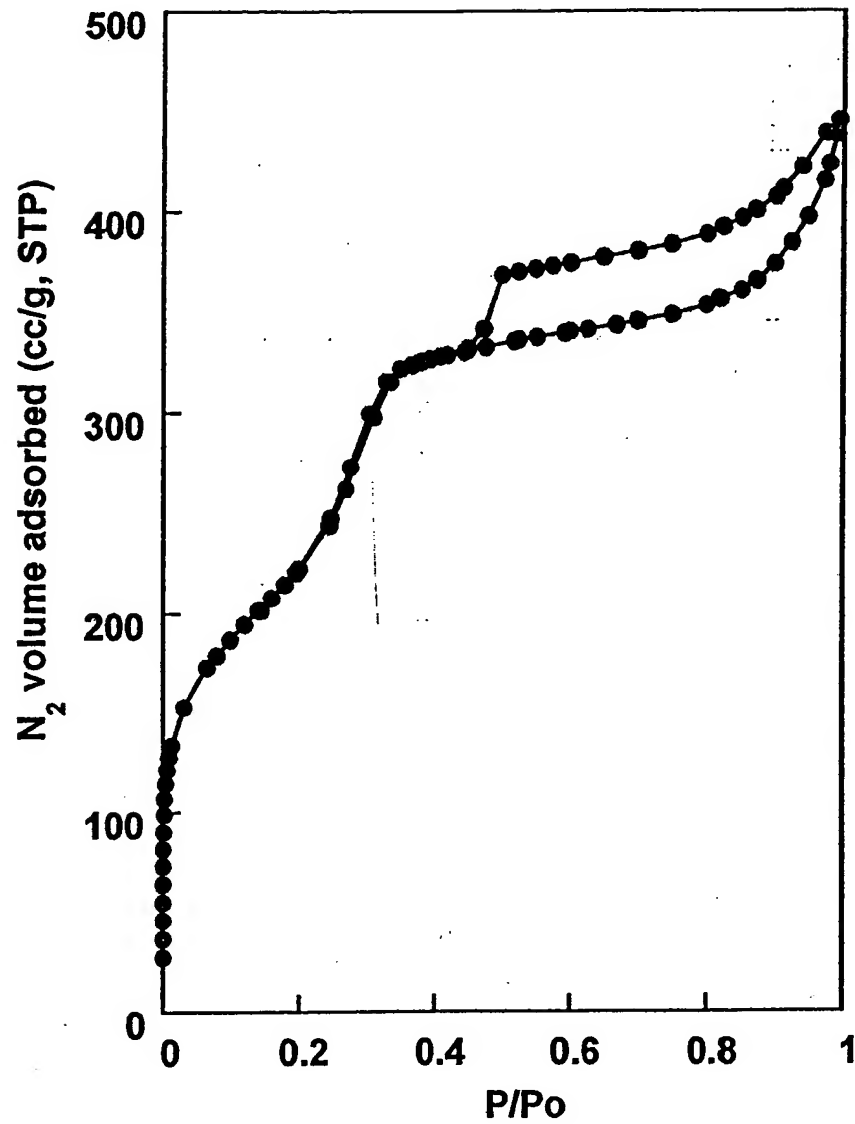


FIGURE 33A

FIGURE 34 (Example 31)

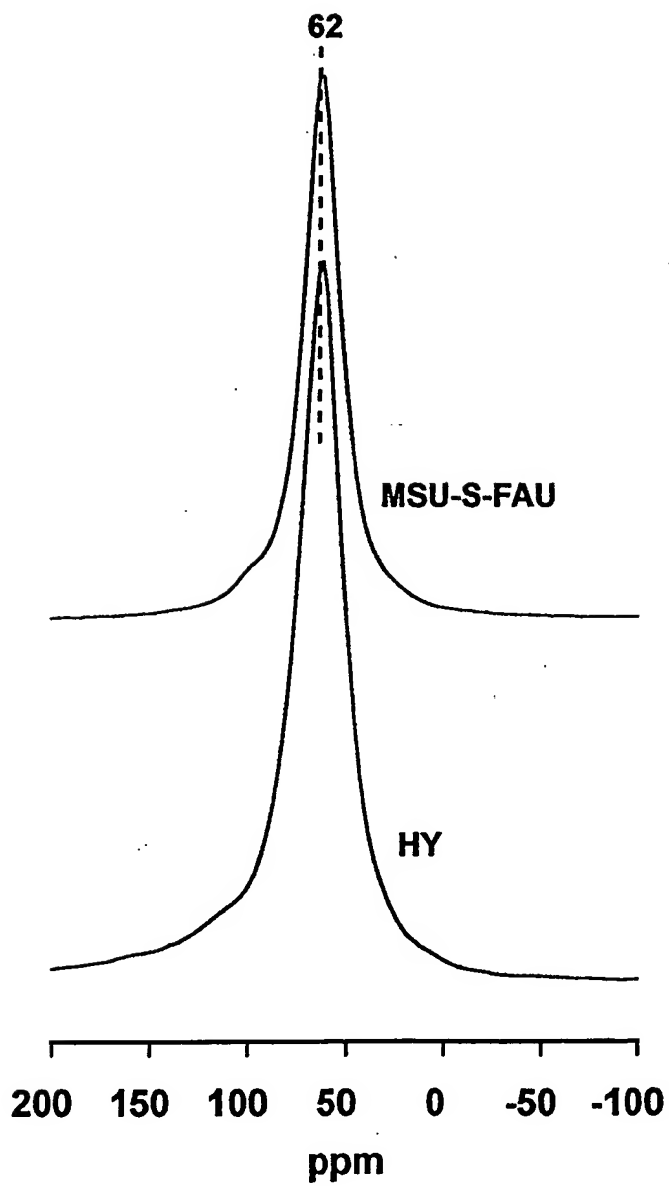
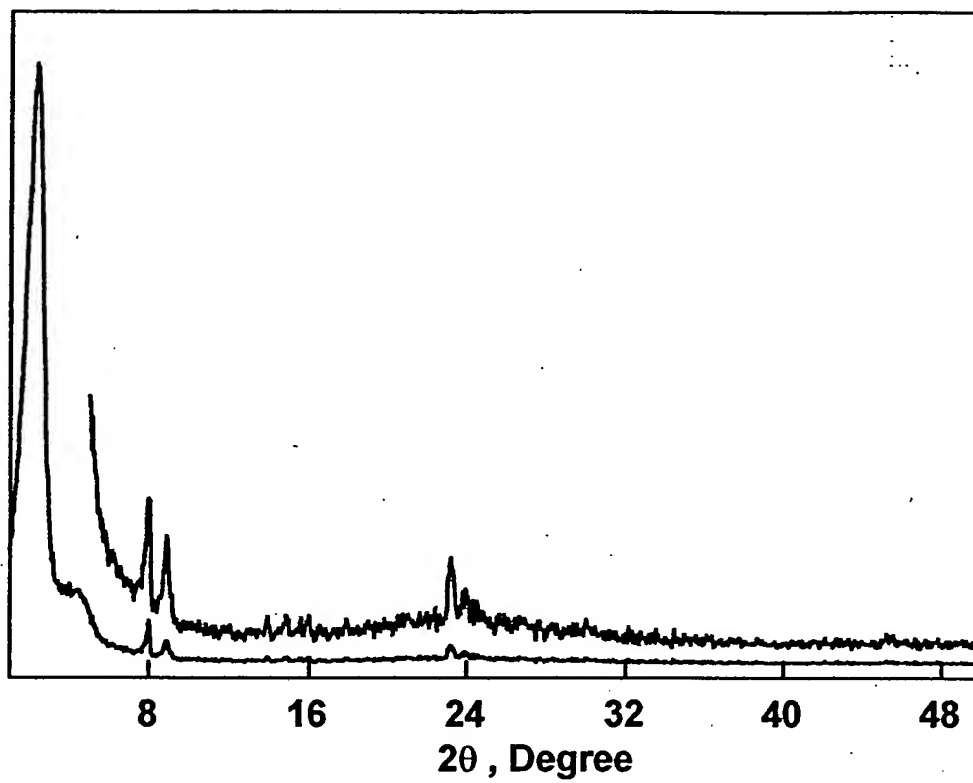


FIGURE 35 (Example 32)



1005547 154904  
1005547 154904

FIGURE 36 (Example 32)

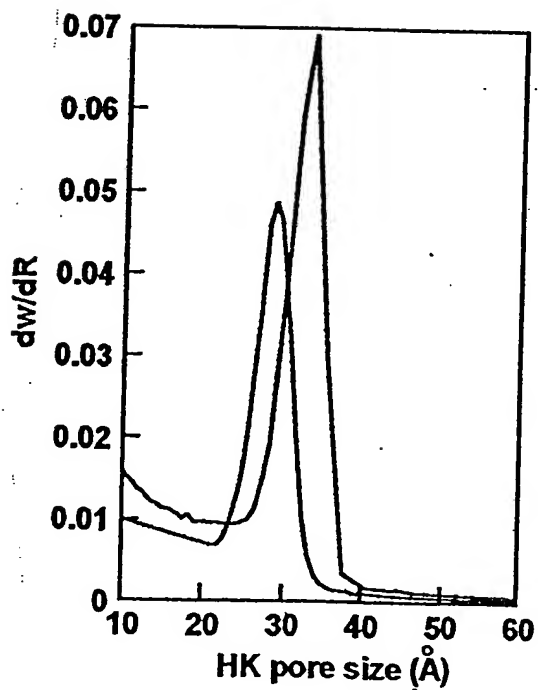
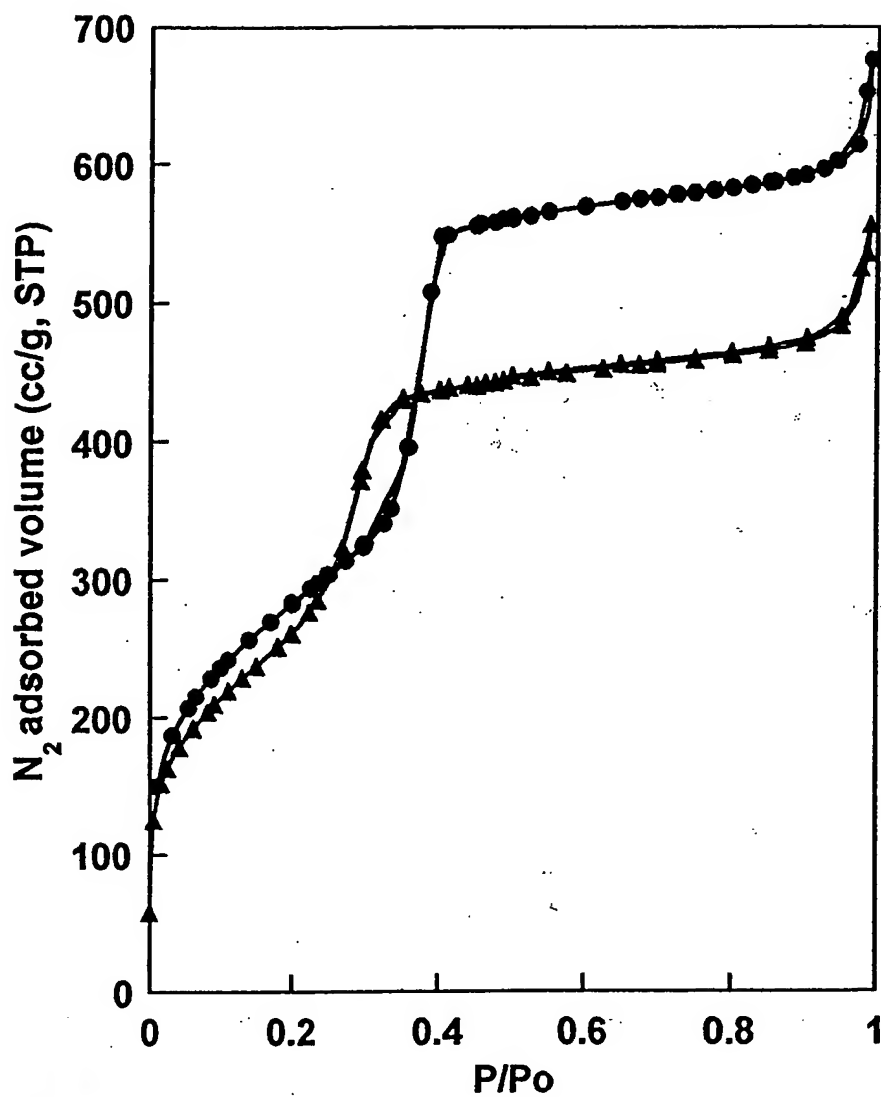


FIGURE 36A

FIGURE 37 (Example 33)

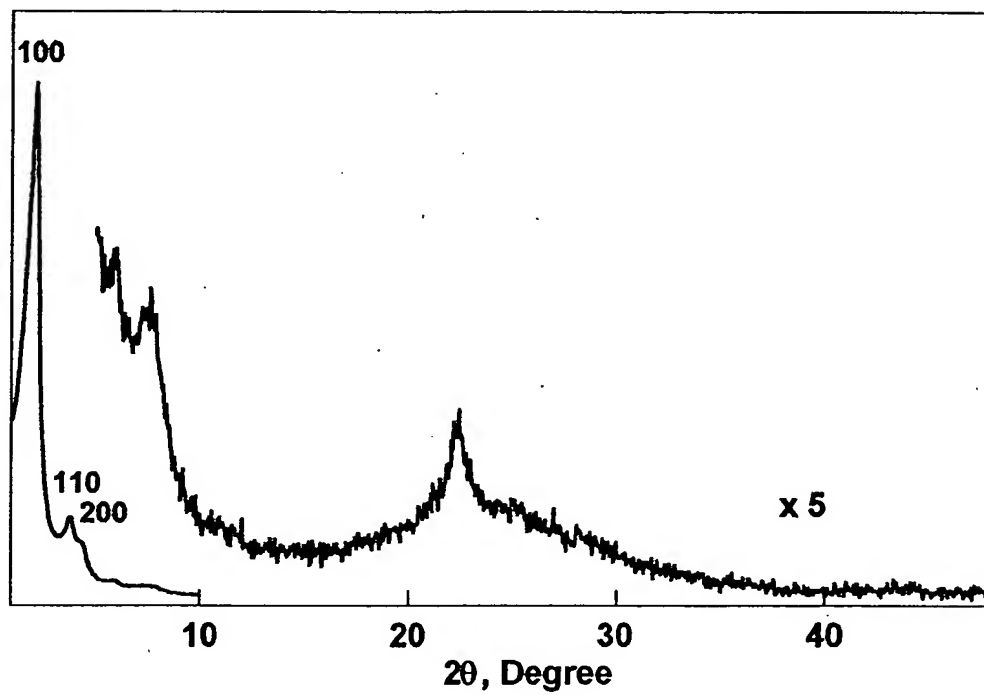


FIGURE 38 (Example 33)

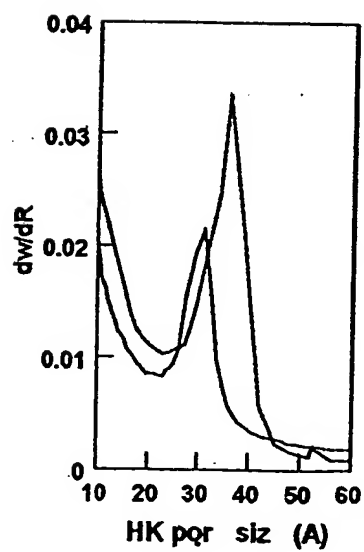
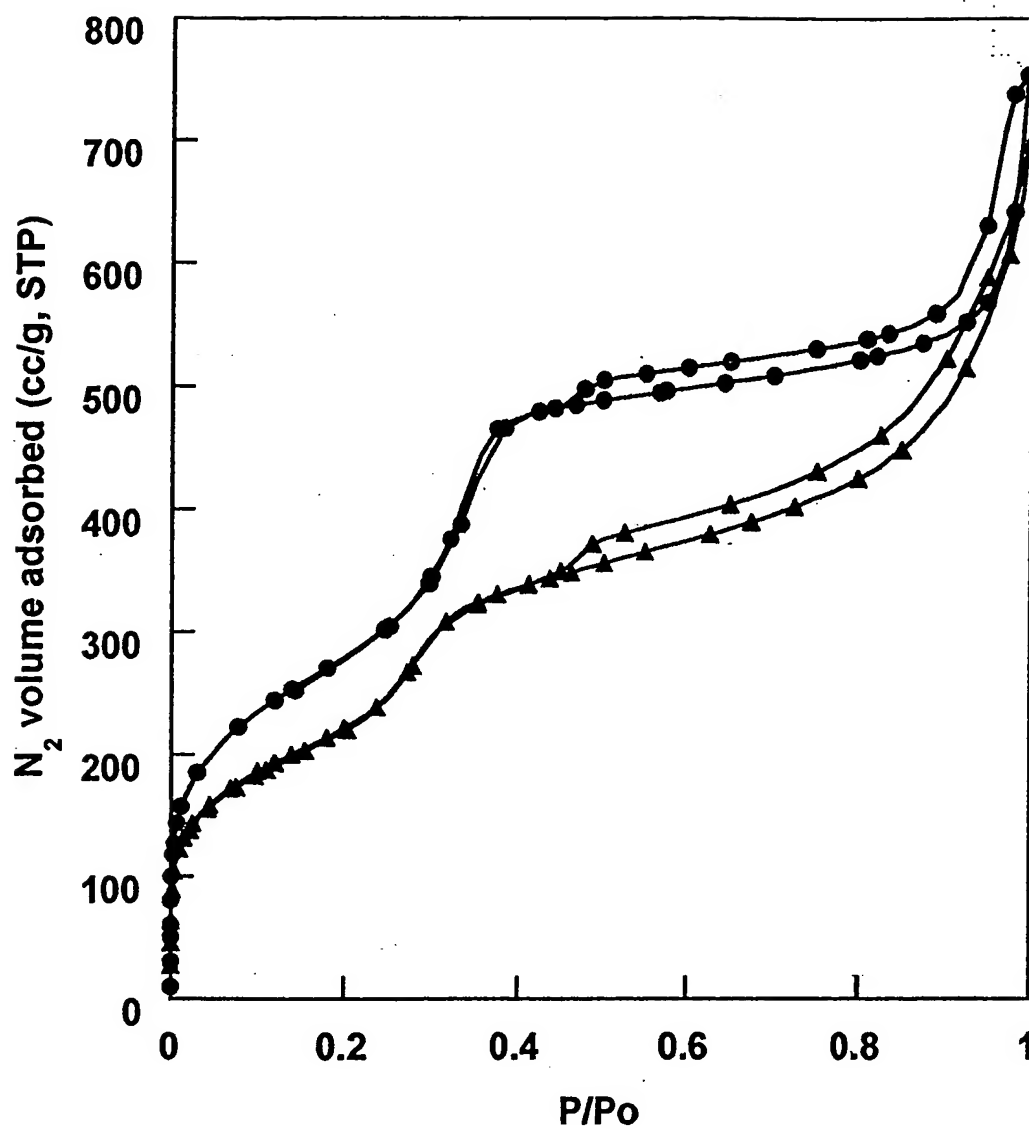
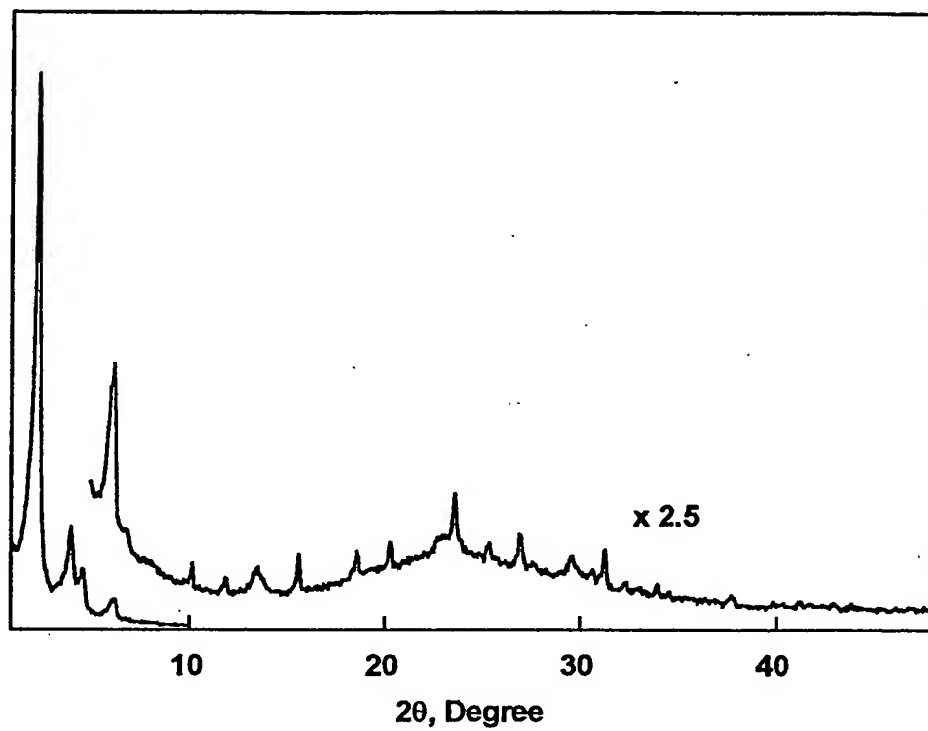


FIGURE 38A



FIGURE 39 (Example 34)



1008547 124901

FIGURE 40 (Sample 34)

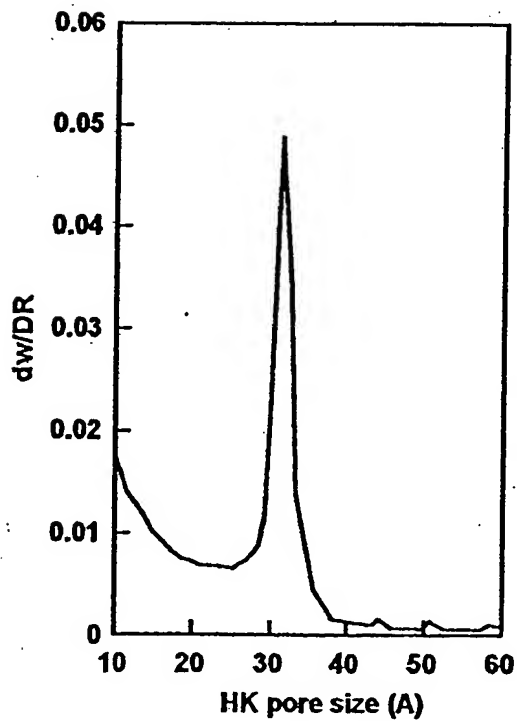
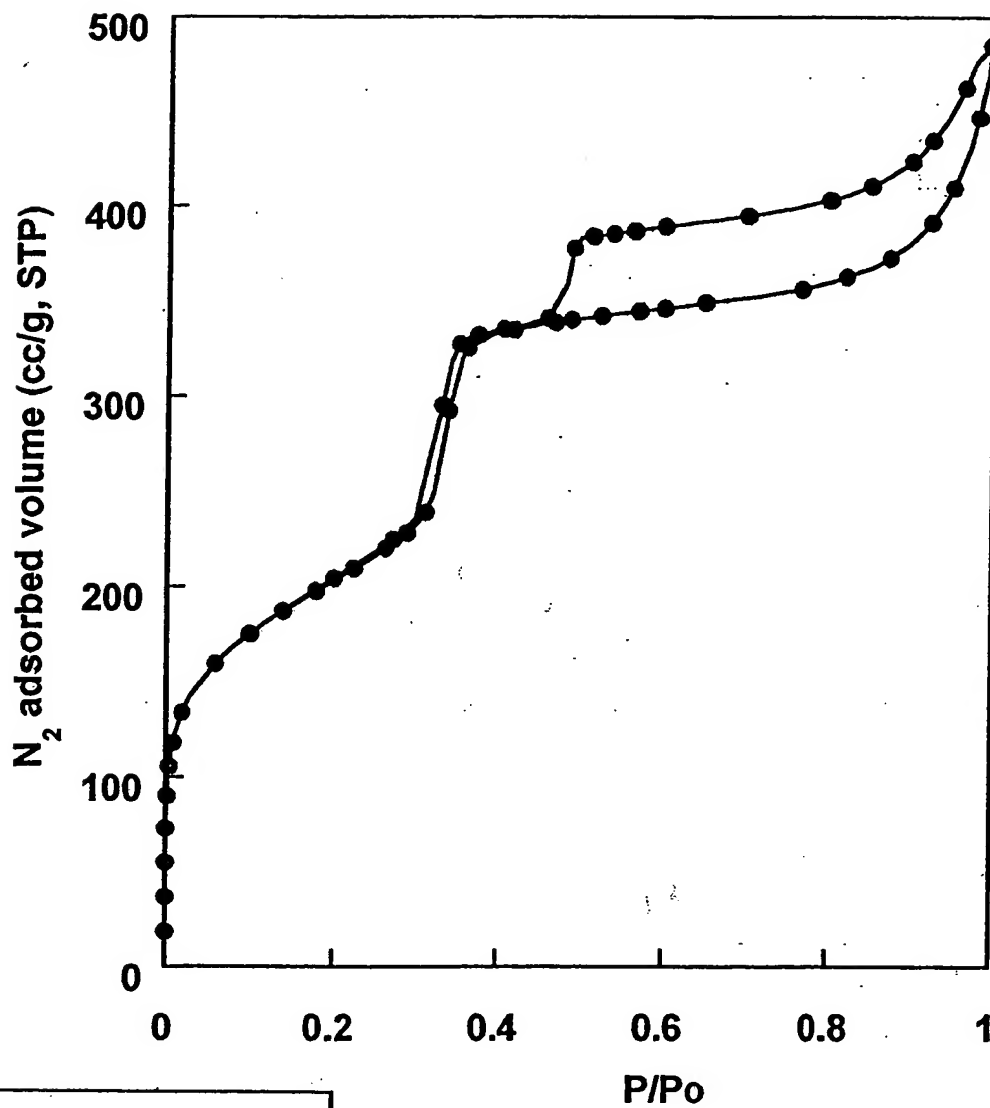
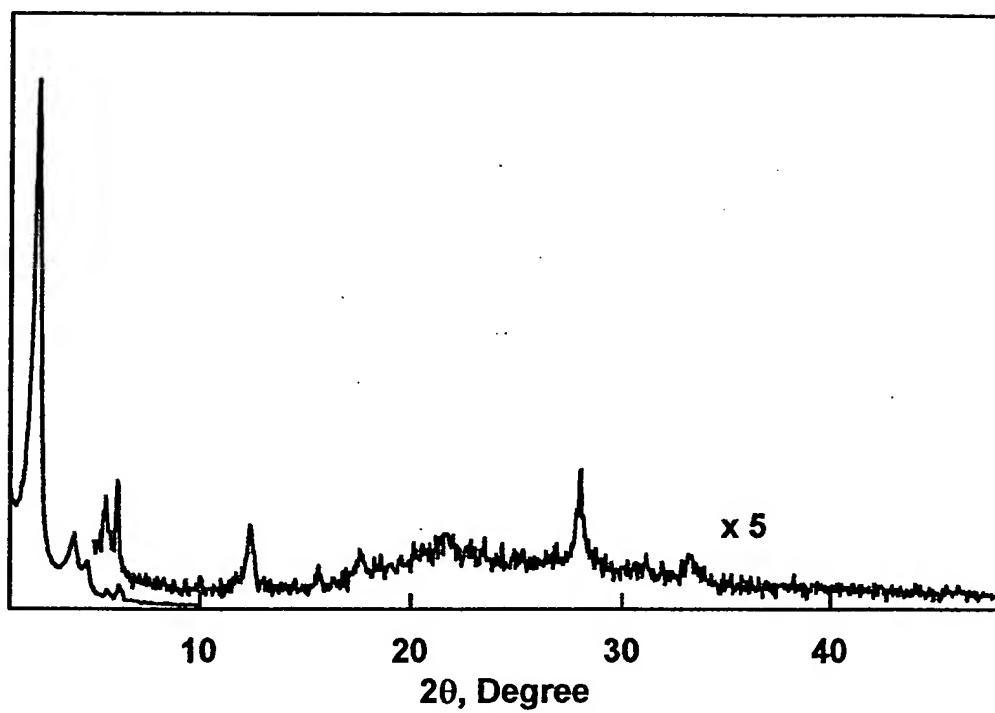


FIGURE 40A

FIGURE 41 (Example 35)



1003547.121504  
1003547.121504

FIGURE 42 (Example 35)

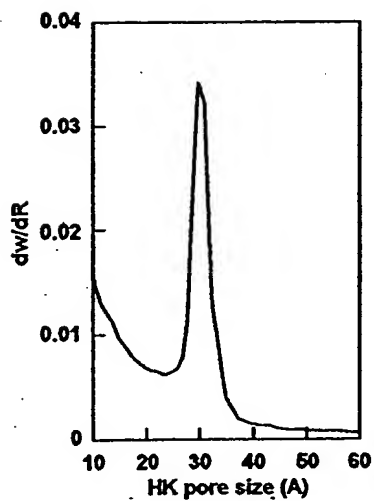
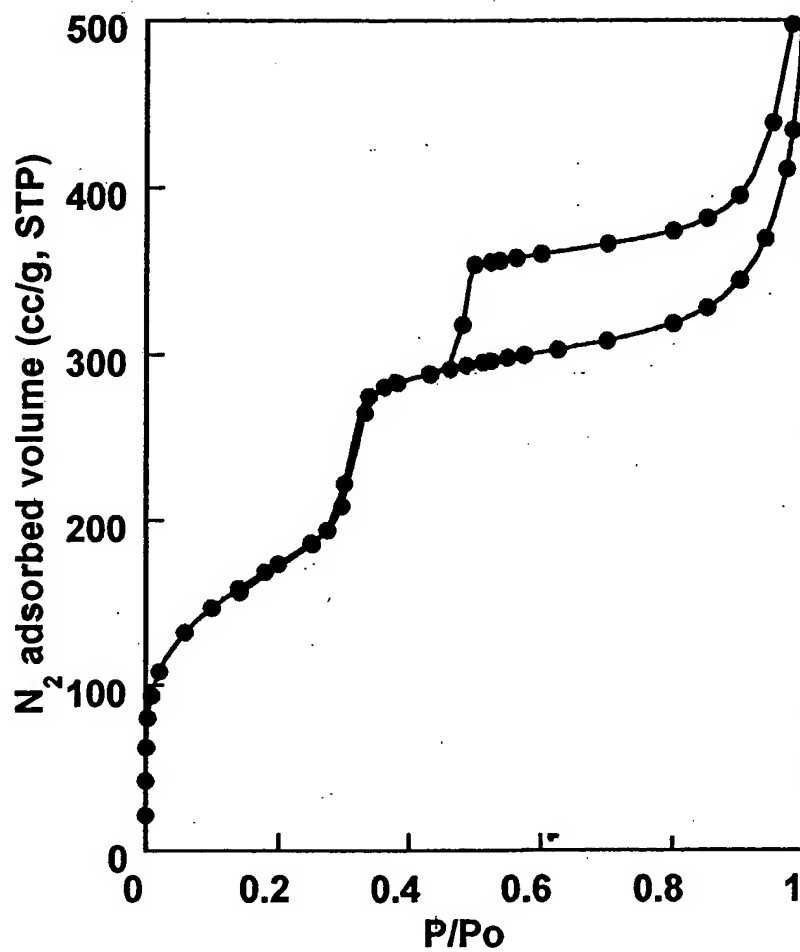
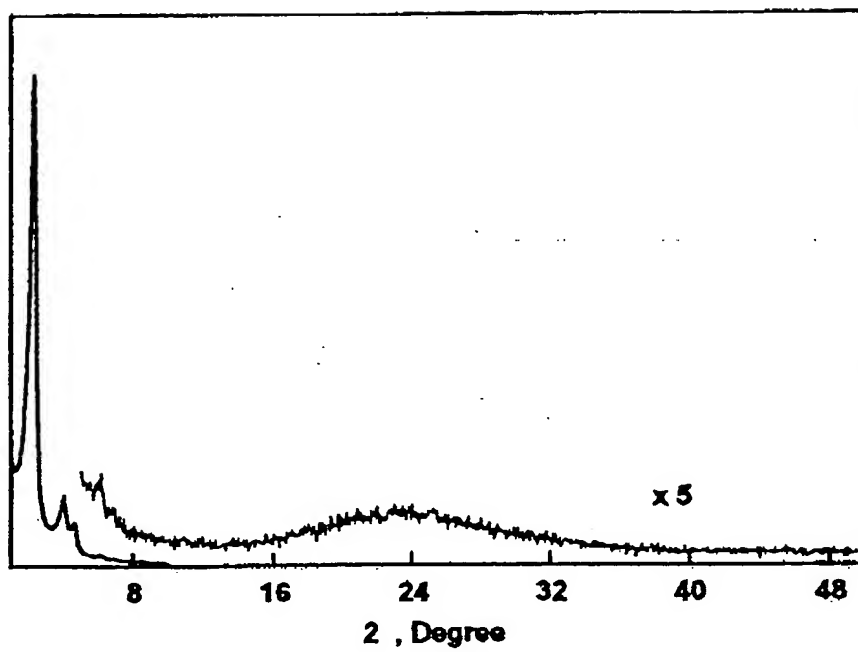


FIGURE 42A

FIGURE 43 (Example 36)



1005547 121404  
1005547 121404

FIGURE 44 (Example 36)

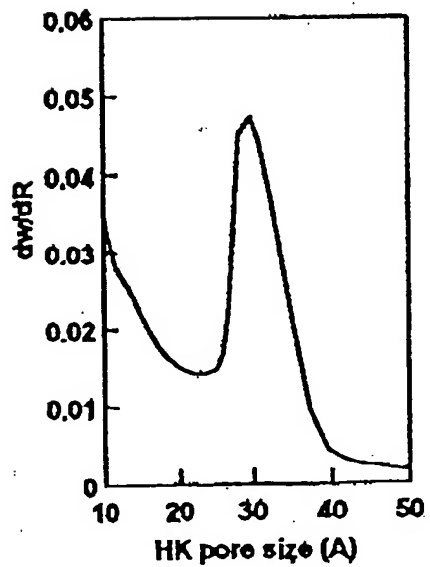
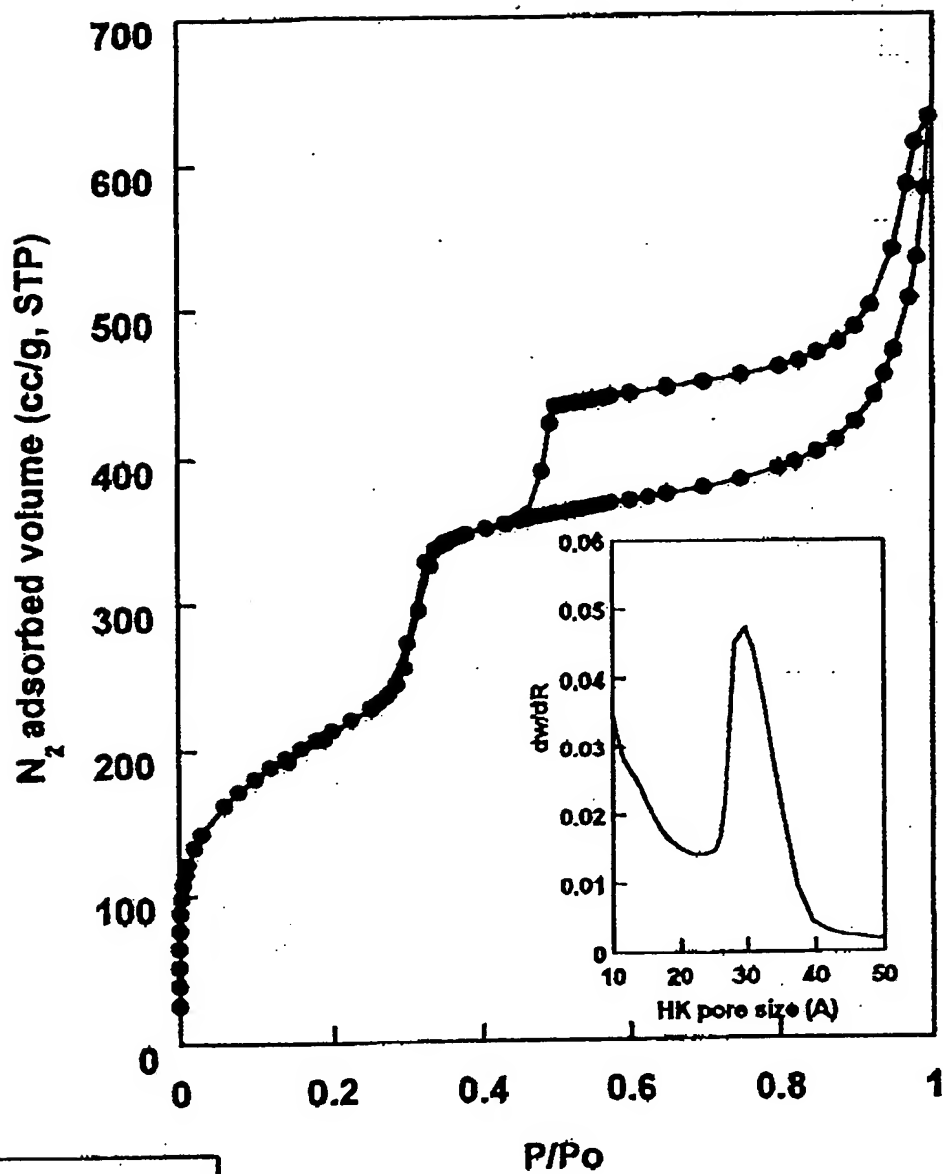


FIGURE 44A

FIGURE 45 (Example 37)

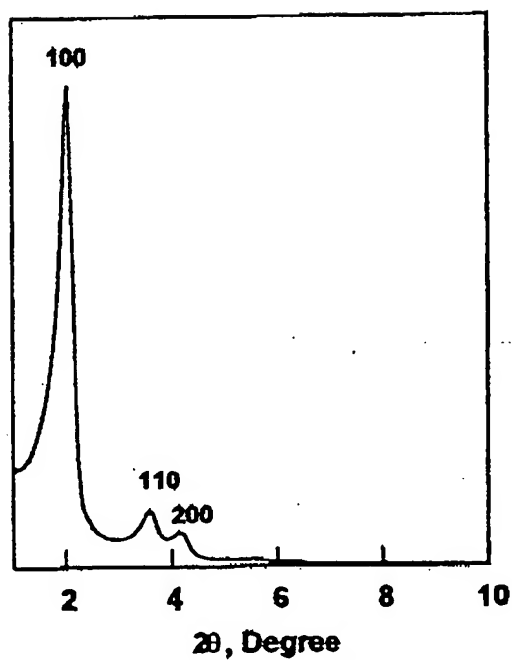
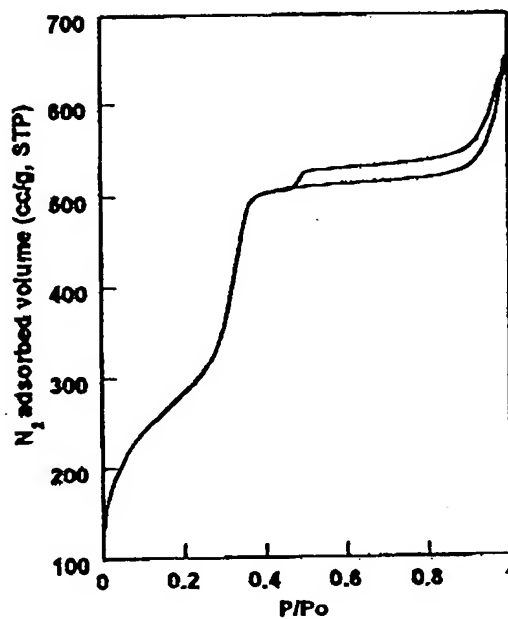


FIGURE 46 (Example 37)



10035647 131301

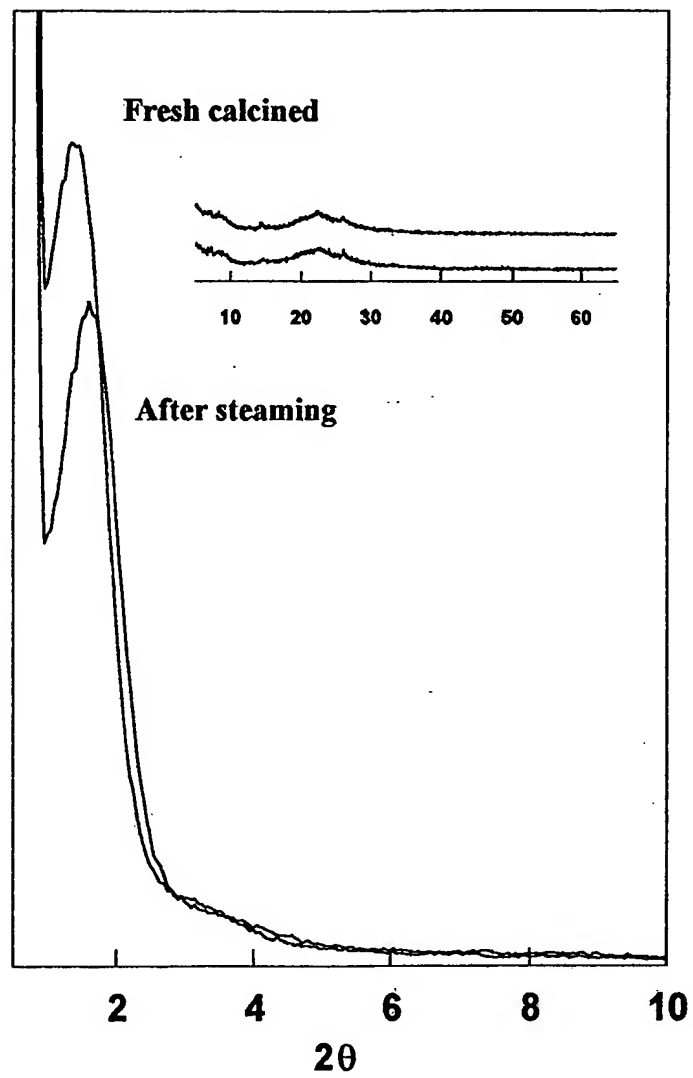


FIGURE 47



1003647 131904

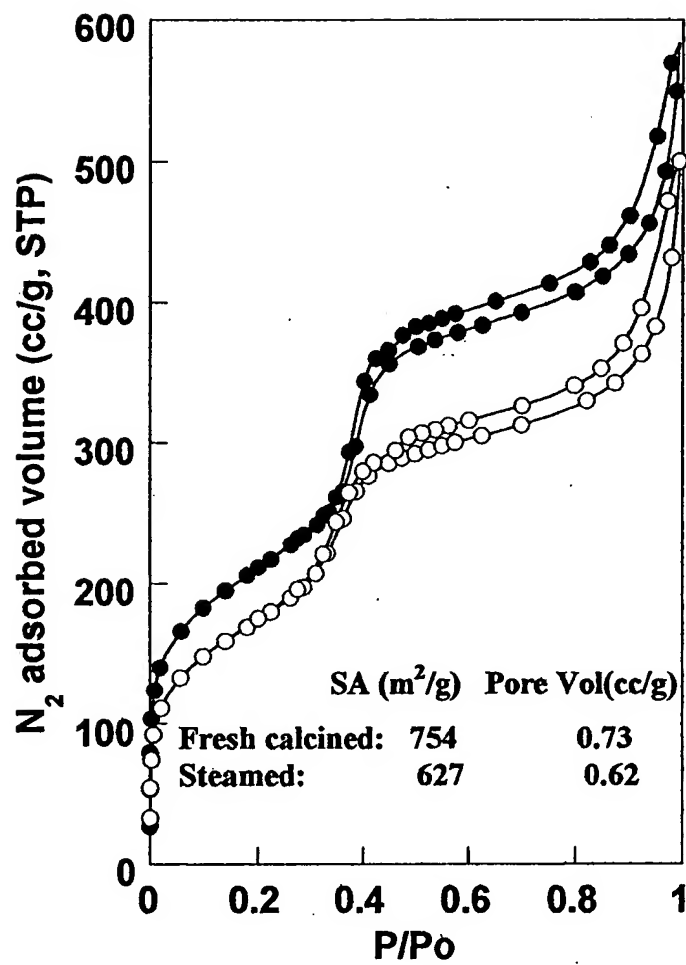


FIGURE 48

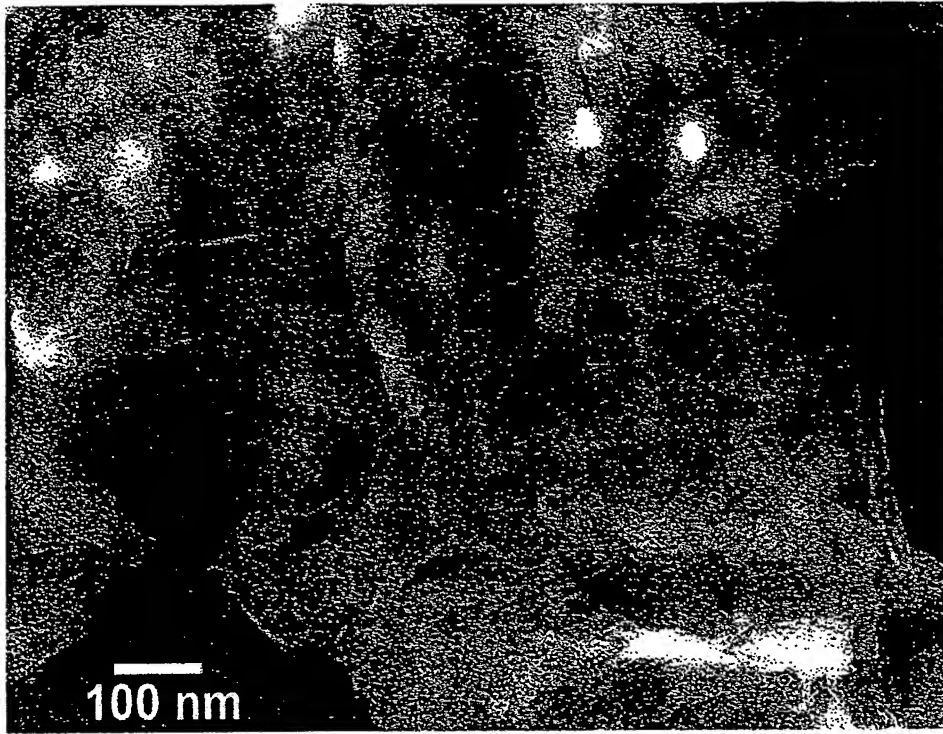


FIGURE 49

1005647 1013004  
1061227 2493200

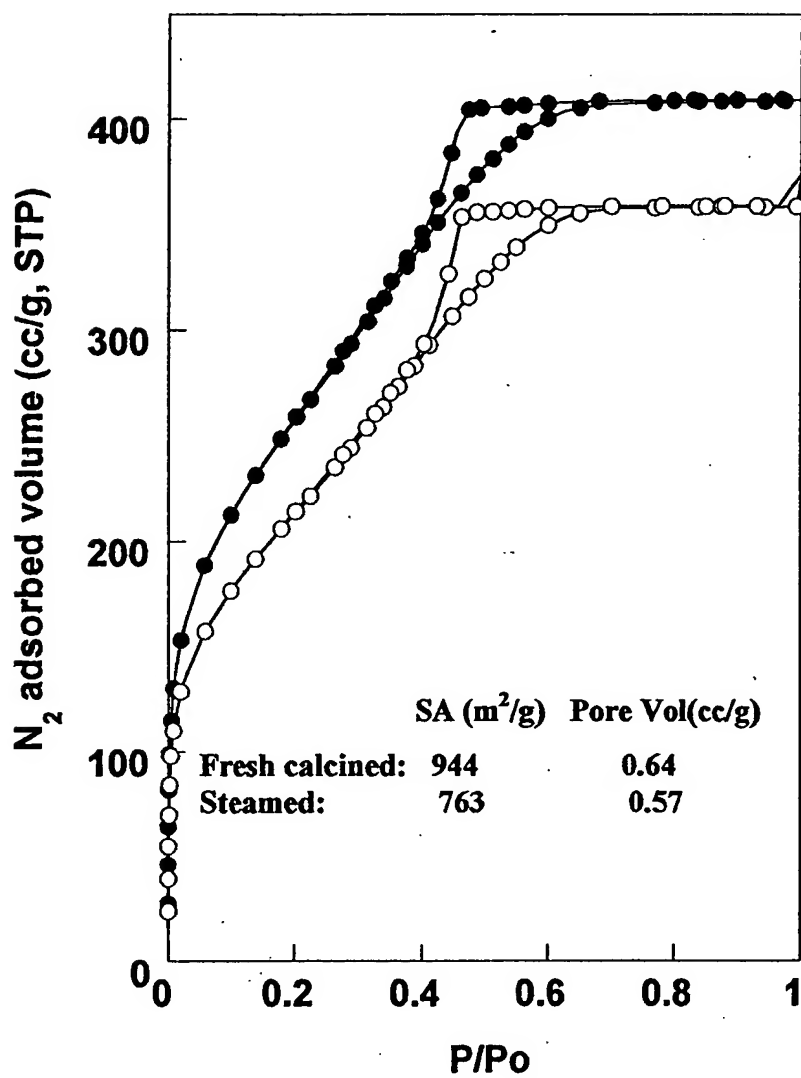


FIGURE 50

1005547 121901

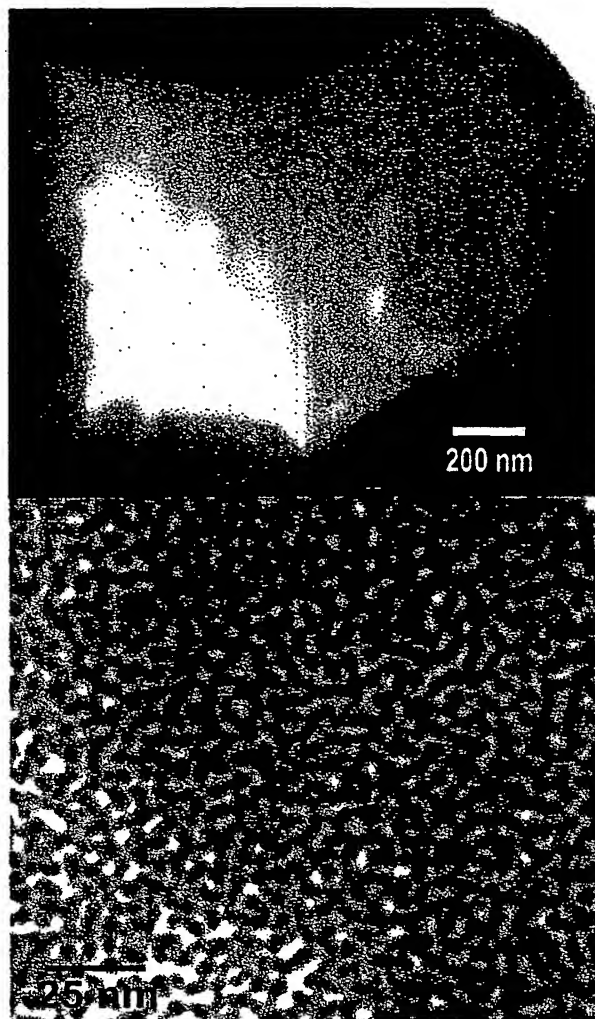


FIGURE 51